THE

WESTERN JOURNAL

OF

MEDICINE AND SURGERY.

MARCH, 1850.

ART. I.—*The Diagnostic Value of the Urine.* A Paper read before a meeting of the Montgomery Medical Society, held at Clarksville, Tenn., Nov. 3, 1849. By E. B. HASKINS. Published by order of the Society.

Within the last few years, many valuable aids have been furnished the medical practitioner in rendering his diagnosis more certain, and, consequently, his treatment more rational and efficient: amongst the most important of which may be mentioned, auscultation, mediate and immediate; utero-vaginal exploration with the speculum, and physico-chemical observations upon the blood and urine.

These three important diagnostic agents, having been directed to different departments of semeiological investigations, extend almost over the entire field of patholo-

gical inquiry. Auscultution and utero-vaginal exploration seem to be fully understood and appreciated by the profession at large. So much so, that it is seldom a medical man is met with, who has not, either at home or in his pocket, both a stethoscope and a speculum. The same, however, cannot be affirmed of the other means of diagnosis—the test-tube and gravemeter, though equally valuable, equally portable, and of equal applicability, are seldom or never to be seen. It is this comparative neglect, by the profession generally, of so important a key to the seat and nature of morbid actions, that has determined me to discharge my obligation, on the present occasion, by offering some reflections upon the diagnostic value of the urine.

In order to a just conception, and proper appreciation of the relations of the renal secretion to *morbid* actions, it is necessary first to take a view of the sources and nature of that secretion, and its relations to *healthy* actions. Such a view, however, in the narrow limits assigned to this paper, can only be *general*, and imperfect in detail.

The entire bulk of ingested matter, water excepted, that is digested and absorbed into the circulation of man and the higher order of animals, belongs to one or the other of two great divisions of alimentary substances—nitrogenous, and carbonaceous—and each is destined to ultimate solution in the organism in subservience of the ends of organic and animal life. The former, or nitrogenous substances, first enter into *vital* connection with the living tissues, and subsequently dissolve in giving rise to certain phenomena, as muscular contraction, and the various active demonstrations of the brain and nervous system; the latter, or carbonaceous, enter directly into co..bination with the oxygen of the inspired air, giving rise, in the course of the circulation, to the phenomenon of animal heat. Along with these substances, certain minerals enter the circulation for certain ends not ne-

cessary to mention here. Notwithstanding this is the destiny of the larger portion of the absorbed alimentary matter; yet there is a portion of both the nitrogenous and carbonaceous that is unappropriated, and is, therefore, cast out of the system, along with the decayed matter, as superfluous.

Now, these two great classes of effete and superfluous substances, corresponding in chemical constitution with the absorbed materials, are respectively provided with eliminating or depurating organs: the nitrogenous, with the skin and kidneys, and the carbonaceous with the lungs and liver.

But these alimentary substances do not pass out of the economy in the same form in which they entered it. The carbonaceous, as oils, starch, gum, and sugar, are mostly reduced in the organism to carbonic acid and water, which escape mainly by the lungs, and that which is not thus reduced, (or, for a time deposited as fat in the adipose tissue) being eliminated by the liver in the form of fatty acids, in combination with alkaline bases. The nitrogenous substances, as albumen, fibrin, &c., on the other hand, are, for the most part, eliminated by the kidneys in the form of urea, uric and hippuric acids, &c. There is every reason to believe, also, that some portion of the effete nitrogenous substances pass off by the skin. Nearly all of the water entering the system, as well as that which is generated in the economy, finds egress by the skin, lungs, and kidneys, respectively.

It will now be seen at a single glance, that these depurating organs are closely and constantly related to every tissue in the animal body, and thus their functional products are alike related to every vital as well as chemical action in the organism. This being the case, then, it must be obvious, that, independent of observations, any deviation from a physiological state in the organs of assimilation, must produce a corresponding deviation in those of secretion and excretion.

The exhalations of the *skin* and *lungs*, for the want of means of readily collecting a sufficient quantity for analysis, can never be of great value for diagnostic purposes. The *bile*, as it reaches the eye of the observer, having traversed the entire length of the intestinal tube, being mixed up with the secretions of the mucous follicles, the gastric and pancreatic juices, the remains of various kinds of aliments, and with gaseous products—can, at best, only furnish a clue to the degree of activity of the hepatic function.

The *urine*, however, is clear of all those objections and difficulties. It is secreted and emptied into a capacious receptacle, and there remains, free from material change, until enough is collected for analytical purposes; and the passage, through which it is discharged, is short and free from foreign matter.* But we are not left to *a priori* reasoning, to establish the *diagnostic value of the urine*—we have observation and experience as ample upon this subject as any other in the whole scope of medical science. There has, perhaps, no class of diseases been more fully and satisfactorily elucidated, and by more able and trustworthy men, than that class which makes a notable impress upon the renal secretion; and from the increasing interest given to physiology and pathology, by the agency of chemico-microscopy, no class of diseases presents a more hopeful prospective view.

Then, in order to present in the strongest light, the claims of the urine to the careful inspection of the diagnostician, I propose, hastily, to consider the most prominent of those diseases under two general divisions:

1. *Diseases that cannot be diagnosed without the aid of the urine.*

---

* Menstrual fluid and vaginal mucus may, sometimes, produce deception in the urine of females; but with a little care they are easily avoided.

2. *Diseases that may be diagnosed, but not so clearly, without that aid.*

I will here take occasion to state, once for all, that only so much of the history, symptoms, and pathology of those diseases, and the constitution of the urine, will be noticed, as has direct reference to the object of this paper, which, is simply to urge the *value of the urine as a diagnostic agent*, without aiming to instruct in its practical application.

I. The first division embraces that interesting class of diseases usually denominated urinary; the most important, and those which will claim our attention, being diabetes (melletus), albumenuria, the various sedimentary and calculous affections, Bright's disease, and inflammation of the mucous membrane of the urinary passages.—Notwithstanding these diseases are termed urinary; yet it should be remembered, that all of them, with a few exceptions, are dependent for their existence upon some remote organic or functional affections. These primary affections, however, being mainly deduced from the state of the urine, and not presenting any other constant sign or symptom by which they may be known, have not, as yet, determined the *name*, though they may have suggested the treatment.

1. *Diabetes* is defined by Dr. Prout to be "a disease in which *a saccharine state of the urine* is the characteristic symptom."* Dr. Christison, on the other hand, denies that the mere presence of sugar is enough to constitute the disease, and adds—*with great tendency to emaciation and suppressed transpiration* † This author, however, admits that "the presence of sugar in the urine is by far the least variable of the phenomena which have been

* Prout on the Stomach and Renal Diseases. † Tweedie's Lib. of Prac. Med. Art. Diseases of the Urinary Organs.

hitherto carefully studied." As a definition can never express the exact nature and limits of a disease, but that definition being best, which answers the best practical ends, I can see no objection to Prout's. If sugar be found in the urine, every prudent practitioner would use those remedies adapted to diabetes, whether emaciation or dryness of skin be present or not; and if there be no sugar, of course the case could not be regarded as *diabetes*, unless the absence be only occasionally and temporary, and then its absence would in no way influence the diagnosis or treatment.

Various hypotheses have been offered, relative to the pathology of diabetes; but by far the most numerous and respectable authorities of the present day, refer the pathological *vice* to the assimilating functions, and not to the kidneys.

But as to the precise *seat* and *nature* of this vice, and the immediate source of the saccharine matter, authors do not fully agree; and perhaps will not, until further researches have more fully developed the laws of healthy and morbid actions.

Berzelius, (On the Kidneys and Urine,) considers the disease to "consist in a mal-assimilation of protein substances, from which, in healthy conditions of the body, urea is formed, but which in diabetes are converted from unknown causes, into sugar, ammonia, and, perhaps, an azotic extractive matter." Simon (Chemistry of Man,) has no doubt, from the extraordinary quantity of sugar excreted by those patients restricted to an animal diet, but *that the sugar is formed from the protein compounds.*— Dr. Maitland (Lond. Med. Gaz., May, 1840,) remarks that "the stomach, in diabetes, has the property of forming sugar from animal as well as from vegetable food." On the other hand, Dr. J. O. Rees (Manual on the Blood and Urine,) would seem to favor the opinion of the derivation of the sugar from saccharine and amylaceous

food alone, and that the primary lesion may be found in the stomach. He gives considerable weight to the experiments of M. Mialhe, showing the power of the saliva, of converting starch into dextrine. Prout, it is well known, teaches that the sugar in diabetes is derived from a morbid state of the saccharine assimilating functions—that "the *reducing* function of the stomach is, for the most part, morbidly active, while the *converting** function is more or less suspended or paralyzed." He further suggests, that in the advanced stages of diabetes, sugar is derived from the gelatinous, and, perhaps, albuminous and oleaginous tissues, during the secondary or destructive assimilation. M. Bouchardat, (Braith. Ret. part xv.) whose observations have been extensive, has invariably found "that the quantity of sugar contained in the urine was always in a direct ratio with that of the bread or the feculent, or the saccharine food they had taken in the twenty-four hours." But amidst this want of agreement, amongst writers, as to whether or not nitrogenous matters may be converted into diabetic sugar there is scarcely any lack of agreement as to the more ready convertibility of sugar and fecula into that substance, and that therefore a knowledge of the saccharine nature of the urine is all-important to the diagnosis and treatment of the disease. Observations, too, have fully sustained the efficacy of the rational indications of treatment, for, observers most invariably agree as to the controlability of the quantity of glucose discharge, by confinement of the patient to an animal diet. Upon this subject, Dr. Rees remarks that "the general belief that diabetes is necessarily a fatal disease, has, in all probability, arisen from

* Dr. Prout, it will be remembered, teaches that saccharine principles, as starch, &c., are converted, by primary assimilation, into albuminous and oleaginous principles, and this is the *converting* function here alluded to.

the circumstance that it was formerly seldom detected until far advanced, and beyond the reach of remedies.—Attention having been of late, however, more actively directed to the general subject of urinary disease, cases are earlier detected and subjected to treatment; and it now occasionally happens that we meet with patients with a well authenticated and old diabetic history, who, on examination, show no signs of diabetes, appearing to have been permanently cured," &c. "If the amount of this saccharine or feculent food be diminished," says Bouchardat, "the proportion of urine excreted, and of sugar contained in it, will diminish in a corresponding degree. By suppressing, almost entirely, the use of this kind of food, the urine gradually becomes natural, both in quantity and composition."

2. *Albuminuria.* The next constitutional, or functional disease, to which I will advert, as depending upon the urine for diagnosis, is albuminuria. It was, some time after the researches of Dr. Bright, proving the coexistence of serous urine and certain organic changes in the kidney; before the profession began to regard albuminuria as a urinary disorder, apart from organic affections of the kidney; but observations have been so numerous on this point, as scarcely to leave an advocate for the identity of the two diseases. Prout says: "that in some individuals the urine is liable to become albuminous from certain derangements of the system in general, and of the kidneys in particular, which cannot at present be otherwise defined than as *functional* derangements." Dr. Graves (Lond. Med. Gaz., October. 1839,) contends that *the albuminous state of the urine is the cause of Bright's disease, and not the consequence.* Dr. Rees has been led to regard albuminuria as connected primarily with a degeneration of the blood, *the kidneys being the first link in the chain of causation, so far as the solids are concerned.*—Many other respectable authorities might be cited upon

this point, but enough has been said to show that there is disease attended with an albuminous state of the urine, that cannot, with the present state of knowledge, be referred to any organic lesion, and is attended by no other constant sign or symptom, by which it may be recognized; and although it may be granted—as has been contended by some, and with great plausibility, too—that the kidneys are in a state of congestion or hyperemia, whenever albumen is found in the urine; yet as that congested state of the kidneys may be subsequent to a more general derangement, and in every such case, can only be assumed from the state of the urine, the diagnostic value of that secretion will not be lessened on that account.—But, allowing whatever disagreeament we may, as to the true pathology and proximate cause of albuminuria, there seems to be no disagreement as to its revealing a condition of the organism, that, if not promptly attended to, sooner or later terminates in renal degeneration, dropsy, and death—that it at least discloses a *dyscrasy*, or incipient constitutional depravity, that requires a careful protection against every species of exposure and intemperate living; and furthermore, that it is a disease by no means rare, and *can only be diagnosed from the state of the urine*.

3. *Urinary Sediments.*—The next subject that presents itself for notice under this head, relates to that group of diseases known as urinary sediments, sand, gravel, and calculi. These terms, however, having reference to the degree of accretion of these deposits, and not to any chemical or pathological distinction, has more of surgical than medical value, and will, therefore, not be applied in this paper.

As there are but few and trifling discrepancies of opinion, regarding the nature and origin of these deposits, and none with respect to their importance as signs of morbid action, I will briefly enumerate the most import-

ant and interesting of them, with a few remarks, touching their general history and pathology.

The sediments are various, and possess very different chemical constitutions, as they are derived from different principles, and different functional lesions in the economy. Some of them are merely the natural constituents of the healthy urine in excess, as urea,* uric acid, uric oxide, the urate of ammonia, and the earthy phosphates; whilst others are foreign to the healthy urine, as oxalate of lime, cystic oxide, and silicic acid, &c.

A. *Urea, uric acid,* and the *urates,* are, no doubt, derived from the proteine constituents of the blood; yet authors are not agreed as to their respective elemental origin, nor to the exact rationale of these formations.—Prout is of the opinion that urea is derived from the metamorphosis of gelatinous, and uric acid from that of the albuminous tissues, and Dr. Golding Bird (On Urinary Deposits) favors this view—at least, that they are derived from different tissues. Liebig, (Animal Chemistry,) on the other hand, supposes that uric acid is the immediate product of the metamorphic action, and that urea is a secondary product arising from the action of oxygen and water on the uric acid.† But these slight hypothetical differences, in no way impair the truth of the general statement, that they are derived from the effete and superfluous nitrogenous principles, and when found in positive excess in the urine, point to a source of disturbance of the functions of assimilation. that is all-important to diagnosis, and rational treatment.

B. *The Phosphatic Deposits,* are supposed, likewise, to

---

* *Urea* never occurs in sufficient quantity to form a deposit, yet from its relation to uric acid, and its salts, it is most convenient to consider it in this connection.

† Thus:—1 atom uric acid plus 4 atoms water plus 6 atoms oxygen are equal to 2 atoms urea plus 6 carb. acid.

be derived from the two sources of food and tissue. Much of the food of man has already formed within it some of the phosphatic salts, and the proteine elements of the tissues contain a given amount of phosphorus, which is readily converted into phosphoric acid by the action of oxygen; and the brain and nervous tissue, containing a larger amount of that substance than the other tissues, would, by hypothesis, yield a large share of the excess found in urine abounding in the phosphates; and observation fully sustains the hypothesis; for excessive mental and bodily exercise most invariably produce an excess of the phosphatic salts, and particularly the triple phosphates.

It is proper, also, to state that these salts are very often associated with serious organic lesions, and particularly of the spinal column; and the mucous membrane of the bladder when inflamed or highly irritated seems to have the power of secreting the phosphate of lime.

C. *Oxalate of Lime.* This deposit, as the result of a morbid state of the organism, was but little understood and appreciated before the researches of Dr. Golding Bird were published in the Medical Gazette, in 1842, and since, in his valuable monograph on urinary deposits.—Indeed, as an element of morbid urine, it was regarded as very rare; but that author has found it to be more constant than the earthy phosphates. Dr. Prout refers the constitutional cause of oxalic acid to a morbid action of the saccharine assimilating functions, and that it is closely related to diabetes melitus. Dr. Bird, however, has never found sugar in oxalic acid urine, nor oxalic acid in diabetic urine; nor has he found the general constitution of the two kinds of urine to agree. He therefore denies the saccharine and amylaceous origin of this acid. But from the constant association of oxalic acid with an excess of urea, and often with uric acid, as well as from the easy convertibility, by hypothesis, of urea and water—

minus one atom of oxygen—into oxalic acid and ammonia, Bird supposes that the acid in question is derived from the urea of the blood, and is associated with the uric acid diathesis.* He admits the correctness of Prout, in placing the primary cause in the digestive and assimilative functions; but refers the morbid derangement particularly to the functions of the stomach, duodenum, and liver.

D. *Cystine, or Cystic Oxide.* Since the discovery of this principle in a calculus, by Wollaston, a number of chemists have detected it in the urine, associated with calculi; but Dr. Robert Willis, I believe, was the first to detect it in the urine unconnected with stone. It is generally found in suspension in the urine, giving it a turbid appearance; but a portion, according to Bird, exists in a state of solution, as acetic acid always precipitates a small quantity.

Prout refers the pathology of this sediment to a morbid albuminous assimilation, and from the fatty matter often voided with the urine, as well as "the waxy character of the countenance," suggests the co-existence of *greasy liver.*

Bird coincides with Prout in referring the derivation of this substance to albumen. He thinks, from the chemical constitution of cystine, there can be no difficulty in explaining its presence in the urine, "by supposing that it is formed by those elements of our tissues which would normally have been converted into urea and uric acid, in consequence of the presence of an excess of sulphur, connected essentially with a scrofulous diathesis."

E. *Silicic Acid.* Berzelius and Simon being the only

---

* Liebig has also noticed the connection between the presence of the oxalates and urates in the urine, but he suggests that the oxalic acid is derived, along with the urea, from the oxidation of *uric acid.* —*Animal Chemistry.*

two chemists that I know of, who have detected silicic acid in healthy urine, and the latter only a *trace*, in the urine of a man, though *healthy*, "whose digestion and nutrition were not very good," I have thought proper to mention this as one of the ingredients foreign to healthy urine. As a deposit, but few credible examples are upon record. Upon the continent of Europe, this substance has been found, mixed with the earthy salts, in some three or four calculi.* In England, Drs. Yelloly and Venables† have each detected silica in notable quantities, and so blended with oxalate of lime as to satisfy the most sceptical against the idea of imposition. The proportion, however, of this substance, seems to have been hardly sufficient to justify the name of *siliceous gravel*. Dr. G. O. Rees is of the opinion that silica may be found in small quantities in most calculi, if it be made the special object of search. But be this as it may, it has been found in such small quantities and so seldom, that little or no pathological interest is attached to it, and is only noticed here, to render more complete the enumeration of urinary sediments.

4. *Morbus Brightii.* Of the organic diseases under this division, the first, in point of importance and interest, is Bright's disease of the kidney, sometimes known as granular degeneration of the kidney. This disease was discovered and made known by Dr. Richard Bright, of England, some twenty years ago, and the accuracy of his researches, and the originality of his discovery, have been fully confirmed by subsequent investigations.

No writer, of the present day, denies the existence of such a disease—often co-existing with albuminuria, and dropsy; most constantly fatal in its termination, and of

* By Vauquelin, Fourcroy, and Wurzer.
† See Braithwait's Retrospect, parts xiii. and xiv.

no unfrequent occurrence. But the point, it seems, that has been most difficult to decide in its history, is the nature of the relation of the organic affection to the albuminous state of the urine; and this is the point which most directly interests us in establishing the value of the urine as the medium of its diagnosis.

Having already shown that albuminous urine does not necessarily imply the presence of Bright's disease, it only remains to be inquired whether Bright's disease is always associated with albuminous urine; and as authors are pretty generally agreed upon the affirmative of this question, I will only notice those facts and opinions, at present known to me, that may seem to militate against this doctrine.

Simon, who always found albuminous urine in this disease, gives Prof. Graves, of Dublin, the credit of denying its constant presence; but when an examination is made of the recorded postmortem of this case, with "Bright's kidneys" secreting "perfectly healthy urine," it will be found that Dr. Graves's denial amounts to nothing. The appearance of the kidneys is thus described: "This man's kidneys were found somewhat enlarged, and at first I thought they were otherwise natural, but a further examination and maceration convinced us that the corticle substance was paler than usual. Increase of size, paleness, and, *perhaps*, a very slight softness of the cortical part, constituted the whole change; there was no appearance of granulations either on the surface, or in the substance of the kidneys."* Besides, this man had had chronic dropsy, with highly albuminous urine, but as the dropsy disappeared, the urine gradually became healthy, and remained so a fortnight, when he took erysipelas

* See Lecture 2nd, of Dr. Graves, at Meath Hospital, session 1837—8, and published in Lond. Med. Gaz., October, 1838.

of the face (the urine again becoming albuminous) and died. Now this case, it seems to me, is not difficult of explanation. It appears he labored under dropsy with albuminuria, which is of frequent occurrence; the return of albuminuria on the acute attack, may be referred to engorgement of the kidney. The postmortem really disclosed nothing but hypertrophy. The *very slight softening*, from Dr. G.'s own showing, was very questionable, and the history of the case would well account for the paleness of the kidney, on the ground of general *anemia*. And, furthermore—and what seems a little inconsistent—in a subsequent part of this lecture, Dr. Graves is willing to admit, that *a well characterized* case of Bright's kidney, existing without albuminous urine, *has never been observed*. Dr. Christison, who has paid much attention to this malady, says that albumen is always present in the acute stage, but sometimes absent in the chronic form; and there are other evidences of its occasional absence in the more advanced stages.

Admitting this to be true, and the practical diagnostic value of the urine will be but little impaired, since that stage in which it disappears can scarcely be remedied by treatment.

Dr. Watson (Lectures on Practice of Med.) declares that albumen is not always present in Bright's disease—but he only alludes to its occasionally vanishing a few hours, after a hot air bath, active purging, &c.; which amounts to no denial of its *constant general presence*. Indeed I want no better advocate for the diagnostic value of the urine, in this disease, than Watson, who says:—"Now it is worth your while to remark, with respect to this category of symptoms that (the state of the urine excepted) they have no special prima facie reference to renal disease, they are all common enough in other complaints.

"In truth, they are mere secondary consequences of

Bright's disease; and in so far as they are symptoms of it, they are indirect symptoms. Before Dr. Bright, no one perceived in such symptoms any indication of disease of the kidney. The primary and fundamental organic malady reveals itself by no direct symptoms except those which are furnished by the urine.

5. *Inflammation of the Urinary Passages.* Inflammation of the mucous membrane of the urinary passages, may be suspected from certain painful symptoms in the direction of those organs, febrile action, &c.; but it cannot be positively diagnosed (except of the urethra) without the information furnished by the urine. The presence of mucus and epithelium scales is almost pathnomonic of this affection. In the chronic form, phosphate of lime usually co-exists; and pus, both in the chronic and acute stage may be present. Dr. Venables* "once saw an instance in which, during the acute stage of inflammation, enormous quantities of pus were secreted and thrown off by the mucous coat of the bladder, similar to what takes place in acute bronchitis." You have now presented to your view, some of the more important of a large class of diseases, that are of very frequent occurrence in this and every other country—none of which can be discovered and identified without the information furnished by the physico-chemical constitution of the urine. And I now proceed to notice, hastily,

II. *Those diseases that may be diagnosed, but not so clearly, without the aid of the urine.* In truth, the condition of the urine may throw some light upon the diagnosis of nearly every disease that may afflict the human body; but it will fall within the object of this paper to notice only such as have a more immediate and constant patho-

---

* Lectures on Calculus and Urinary Disorders—Lond. Med. Gaz. for August, 1839.

logical relation with that fluid, and even these are too numerous to admit of more than a general and hasty consideration, in a paper aiming more to call attention to facts, than to elucidate their nature.

1. *Disorders of the Brain and Nervous System;* as coma, convulsions, hysteria, nervous exhaustion, &c.

Notwithstanding these diseases, as already stated, may be diagnosed without reference to the urine; yet, that secretion, it is allowed by every one, throws much light on their peculiar nature, and at times, may become absolutely essential to a correct diagnosis.

Coma, and certain forms of *convulsion*, at times, owe their origin to a deficient excretion of urea, and, consequently, its accumulation in the blood; whilst at other times, they proceed from very different causes, as narcotic poisons, indigestible substances in the stomach and bowels, intestinal worms, cerebral congestion, hysteria, &c.; and hence it cannot but be obvious that the renal secretion is no unimportant agent in determining the nature of such cases.

Hysteria is another diseases that is pretty generally associated with a characteristic state of the urine. It is usually abundant and of low specific gravity. That hysteria, may, under most circumstances, be diagnosed very readily, will not be denied, yet it sometimes so assimilates other diseases, as epilepsy, tetanus, &c., that a satisfactory diagnosis is quite difficult.

Nervous Exhaustion, or that disordered state of the nervous system usually denominated *nervousness*—where great mental exercise or anxiety has caused considerable waste of the nervous tissue,—the kidneys, as in hysteria, often secrete a quantity of pale limpid urine; but differs from hysterical urine in containing usually an excess of the ammoniaco-magnesian phosphates.

2. *Chronic Organic Diseases*, as of the heart, liver, spleen, &c., are well known to produce certain changes

in the secretion of the kidneys—such, however, as will not be contended, are peculiar to these diseases—yet when accompanied by other symptoms, go very far in elucidating their nature. Thus, in auriculo-ventricular contraction of the heart, and in certain lesions of the liver and spleen, as cirrosus, and induration of the spleen, the urine is secreted in small quantities, of high specific gravity, abounding in sediments, and deeply colored by the presence of purpurine.

Hypertrophy of the heart, too, is often associated with an albuminous urine.

3. *Chronic Functional Diseases*, as dyspepsia, or indigestion, &c.

The terms dyspepsia and indigestion are exceedingly latitudinous, and indefinite in their meaning. They embrace a large number of disorders, having no common resemblance, except defective or vitiated nutrition. The primary and most important seat of the disorder may be found in every series of the assimilating functions, from the digestive actions in the stomach to the destructive processes in the peripheral vascular system; and in each series it may have several independent sources. According to Prout, and I believe his classifications in the general are adopted by the profession, indigestion may be referred to a pathological state of the functions of aqueous, saccharine, albuminous, and oleaginous assimilations —and these pathological departures may be found in different stages of these processes of assimilation. And hence the importance of a more specific diagnosis, than that which merely arrives at the indefinite notion of *indigestion*, or *dyspepsia*. I have already shown the *general* relations of the assimilating functions to the renal secretion, and also that in certain *special* derangements of these functions, certain more or less constant alterations may be found in the urine, as excess of urea, uric acid and urates, the presence of oxalic acid, cystine, sugar, &c. Then, when dyspeptic symptoms make their ap-

pearance, it is clear that the urine alone can furnish that clue to the precise nature of the complaint, that is requisite to a rational and safe treatment.

4. *Acute Inflammatory Diseases.* The last group of diseases, that will be noticed, are some of the acute inflammatory diseases, as gout, rheumatism, acute dropsy, nephritis, &c. It is well known that each of the diseases here mentioned, is sometimes liable to be confounded with others, and it is equally well known that each is usually associated with a certain morbid alteration of the urine. Thus, gout and rheumatism were attended with a high colored urine—often abundant, and loaded with sediments of uric acid and the urates of ammonia and soda; acute dropsy, with urine of sparse secretion, albuminous, and high specific gravity. The urine in nephritis may be variable, according as the investing capsule, cortical, and tubular portion, or the pelvis of the kidney may be the seat of inflammatory action. In these affections, it may vary but little from a healthy state, as in *peri-nephritis*—albuminous, as in *inflammation of the cortical and tubular portion*—or contain mucus and pus, as in *pyelitis.*

I will now conclude by briefly mentioning the late supposed discovery of a specific constitution of the urine in *Pregnancy*, which, though not a disease in itself, may often be confounded with diseases; and, besides, the diagnosis of pregnancy is sometimes of great value and interest in a medico-legal point of view. The principle that has been supposed to characterize the urine in gestation has received, from its discoverer, [Nanche] the name of *kystein*, or *kiestein.* Many experiments have been made to ascertain the truth and value of this discovery, and although kiestein has not been found invariably in pregnancy—and it is even rendered probable that it may occur under other circumstances, as in lactation (Kane)—yet they nearly all concur in proving its presence in the urine, as a general thing, sometime in the course of gestation.

This state of the urine, however, is not, at present, regarded as depending upon the presence of any *new simple substance;* but to owe its peculiarity to the admixture of a *proteine substance* resembling caseine, a *butyraceous fat*, and the *ammoniaco-magnesian* phosphates. But this, even of a *proximate elementary character* does not render it the less valuable as an agent in diagnosis, if it be found to exist *only under certain conditions.* Without detaining you with the details of experiments—regarding the diagnostic value of kiestein, Simon (Chemistry of Man) remarks: "From the observations of Kane and myself, it seems to follow, that pregnancy may exist without the occurrence of kystein in the urine; if, however, there is a probability or possibility of pregnancy, and kystein is found in the urine, then the probability is reduced almost to a certainty." Upon the same subject, Dr. Bird (Urinary Deposits) concludes, from his observations: "As a test for the existence of pregnancy, the formation of the caseous pellicle, especially if accompanied by a cheese-like odor, will be an extremely valuable *corroborative* indication: but it would be unsafe to found on it alone any positive opinion, because, as a sufficient number of observations have not yet been made on this subject, we have no right to assume, however probable it may be, that a caseous pellicle can appear *only* when pregnancy exists."

Since this paper has been ordered for publication—to give it as much *practical* value as possible—I have constructed the following table, to assist such as may wish to avail themselves of the helps furnished by morbid urine, in the difficult task of diagnosis; and who may not have the advantage of a competent chemical education. It will be observed that the instruments and reagents necessary for all the manipulations in the Table, are *few, simple, and easy of application.*

A TABLE TO ASSIST THE BEGINNER IN THE DIAGNOSTIC APPLICATION OF MORBID URINE.

SUBSTANCE.	PATHOLOGICAL RELATIONS.	CHARACTER OF URINE	CHARACTER OF DEPOSIT.	MANNER OF TESTING, &C.
UREA.	Found in excess sometimes in inflammatory affections, in a certain form of diuresis called by Willis, Azo turea, in oxalic acid, urine, &c. Deficient in diabetis insipidus, hysterical diuresis, &c.	Color and other sensible qualities variable; specific gravity, high; acid reaction.	Being soluble in an equal quantity of cold, and every proportion of warm water, there is no deposit.	Put a small portion of the suspected urine in a watch-glass, add an equal quantity of nitric acid, and if urea be in excess, crystals of nitrate of urea will immediately form. To determine whether the excess be absolute or relative, the amount of urine discharged in the twenty-four hours should be ascertained.
URIC ACID.	In excess, in inflammatory, and some febrile affections, gout and rheumatism, certain diseases of the lungs, liver, and heart, indigestion, &c	Color high; S. Gr. slightly increased; acid; often associated with the urates, and *purpurine*.	Chrystaline and red, from the coloring matter of the urine.	Insoluble in water, readily soluble in caustic potash, and precipitated from this menstruum by the addition of an acid; in a granular and colorless state, dissolved by nitric acid with effervescence, and by careful evaporation to dryness, yields a pink color, which becomes a fine violet by the action of ammonia.
URATE OF AMMONIA.	Pathological relations much the same as uric acid.—Urate of *soda* present in gout and rheumatism.	Color varies from pale to deep copper; S. Gr. variable; often low; acid; becomes turbid on cooling.	Varies from white to purple; pink or fawn color most common; amorphous.	Subject a small portion of the turbid urine in a test tube, to a gentle heat from the blaze of a spirit lamp, when the urates will dissolve, rendering the urine perfectly clear. It will be well to watch the process of clearing, as albumen, if present, will render the specimen again turbid, at a higher heat.

SUBSTANCE.	PATHOLOGICAL RELATIONS.	CHARACTER OF URINE.	CHARACTER OF DEPOSIT.	MANNER OF TESTING, &C.
PHOSPHATES.	Nervous exhaustion in excess; diseases and injuries of the spinal column; marasmus; abuse of the sexual organs; mercurial cachexia; certain periods of continued fever; inflammation and irritation of the bladder, &c.	Color variable, often pale; Sp. Gr. variable, mostly low; alkaline; triple phosphate often acid; opulescent.	White, except colored with blood; phosphate of lime amorphous; triple phosphate; chrystaline.	Soluble in dilute hydrochloride and nitric, and strong acetic acids; insoluble in ammonia and liq. potass; heat does not dissolve; mucus and pus often present; and sometimes blood; triple phosphate may often be detected on the surface of urine that has stood for a time, forming a thin irridescent pellicle, or sheet of minute crystals.
OXALATE OF LIME.	Associated with chronic and peristent derangement of the general health; dispepsia, mercurial and syphilitic cachexia; exhaustion from child bearing, and over lactation; venerial excesses, &c.—(Bird)	Pale citron yellow, or greenish hue; (Prout.) fine amber hue; often darker than natural; (Bird.) Sp. Gr. variable; acid.	A white, glistening powder diffused through the urine, but does not fall as a distinct deposit. (Bird.)	Insoluble in aqua potass, and acetic acid; soluble in nitric acid, and convertible by a red heat into carbonate of lime. The microscope reveals beautifully formed transparent octohedral crystrals, with sharply defined edges and angles, &c.—(Bird.)
CYSTIC OXIDE.	But little seems to be known; Prout suggests its connexion with malignant disease, and particularly with *fatty liver*. Bird is of opinion that it is associated with the scrofulous diathesis.	Greenish or honey yellow; sometimes oil on the top; odor of sweet-briar; Sp. Gr. generally low; neutral, or slightly acid.	White or fawn colored pulverulent deposit, much resembling the pale variety of urate of ammonia.—(Bird.)	Heat does not dissolve it as it does urate of ammonia; nor dilute hydrochloride, and strong acetic acids, as they do the earthy phosphates; readily soluble in liquor ammonia; microscope reveals crystals in the form of six sided laminæ.

SUBSTANCE.	PATHOLOGICAL RELATIONS.	CHARACTER OF URINE	CHARACTER OF DEPOSIT.	MANNER OF TESTING, &C.
SUGAR.	The presence of sugar in the urine is pathognomonic of diabetes mellitus, which has for its most usual associates, certain forms of indigestion; boils and carbuncles, &c.—In the latter stages, phthisis; jaundice; dropsy; apoplexy, &c.—(Prout.)	Pale straw color; clear; odor of hay; sweetish taste; Sp. Gr. high; acid reaction.		There are many tests for diabetic sugar, but the following, (Moore's test,) from its easy application, and, according to Bird, from its remarkable freedom from sources of fallacy, may suffice here. Boil for a minute or two in a test tube, two or three fluid drachms of the urine with half the quantity of liquor potassæ, and if sugar be present, the urine will become of an orange yellow, brown or claret color, by conversion of the sugar into melassic acid; the *yeast test*, and also Trommer's, might be used as confirmatory.
ALBUMEN.	Found in the urine, in Bright's disease of the kidney; albuminuria; certain forms of chronic and acute dropsy; and other chronic affections; the latter stages of acute exanthemata; gout; rheumatism, &c.	Sensible qualities, density &c.; variable; if albumen be abundant it has a sticky feeling.		Heat a portion of the urine, in a test tube, to the boiling point, and if it becomes turbid, the precipitate is either albumen, or earthy phosphates; if the latter, a drop or two of nitric acid will clear it again, and if the former, it continues turbid; if the urine be alkaline, add a few drops of nitric acid before heating; if in this case the patient has been using balsam or cubebs, an equal quantity of alcohol should be added to the turbid urine, which again clears, if the deposit be not albumen.

SUBSTANCE.	PATHOLOGICAL RELATIONS.	CHARACTER OF URINE.	CHARACTER OF DEPOSIT.	MANNER OF TESTING, &C.
MUCUS.	In excess, in inflammation and irritation of the genito-urinary passages; from various causes, as cold; mechanical irritation of calculi, &c.	Color, &c., variable; cloudy; sometimes gelatinous; Sp. Gr. variable; generally alkaline.	Stringy or ropy masses.	Add acetic acid, and if the deposit be mucus it "coagulates into a thin semi-opaque corrugated membrane, presenting an appearance so peculiar, that once seen it can never be mistaken." (Bird.)
PUS.	Presence in the urine indicates, suppuration of the kidneys, or mucous membrane of the genito-urinary passages, abcess in adjoining parts, &c.	Color, Sp. Gr., &c. variable; turbid; acid or neutral.	A dense homogeneous layer of a pale greenish cream color, uniformly diffusing on agitation.	Agitate a portion of the deposited pus with an equal quantity of liquor potassæ, and a dense translucent, gelatinous or mucous mass forms; by subjecting the supernatant urine to the test of heat and nitric acid, albumen may be detected; not coagulated by acetic acid as mucus, and undergoes putrefaction slowly.

ART. II.—*The History, Diagnosis, and Treatment of Edematous Laryngitis.* By ELISHA BARTLETT, M. D., Professor of the Theory and Practice of Medicine in the University of Louisville.

ARTICLE I.—INTRODUCTORY.

I have been induced to prepare this memoir, principally by the following considerations. The disease, of which it gives an account, runs its course with great rapidity, and is attended with extreme danger; terminating, nearly always, in death, unless arrested by timely and active interference. There is good ground for believing that this disease is of more frequent occurrence than has generally been supposed. There is no full and complete history of it, generally accessible to American physicians. There is no impropriety in saying that no one of the popular and standard works on practical medicine, either English or American, usually found in the hands of our medical men, and relied upon as guides and authorities, furnishes such knowledge of this disease as is essential to its successful treatment. This knowledge ought at all times to be ready for use and application. The necessity for this use and application, whenever it occurs, is immediate, urgent, and pressing; it admits of no delay; there is no time for deliberate inquiry and consultation. The physician, in many, perhaps in most cases, is obliged to act upon his own single responsibility; it is his duty to be fully prepared, in advance, of the emergency, to act promptly and aright.

The sources from which the materials, made use of in the composition of this paper, have been derived, will be indicated in their appropriate places. I have nothing of my own to add to these materials, except the vivid and painful recollection of two fatal cases of the disease, occurring in private practice, both of which, with our pres-

ent means and knowledge, might probably have been saved.*

ARTICLE II.—Lesions.

Sec. 1. *Preliminary.*—The pathological anatomy of edematous laryngitis constitutes the necessary and indispensable foundation of everything like an adequate and complete knowledge of the disease. Its symptoms, its pathological relations, and its treatment, can be rendered intelligible only by a reference to its lesions. If there were still to be found, in the ranks of our profession, any individuals of that class who are disposed to depreciate the value and to underrate the importance of pathological anatomy, they could hardly be referred to any more striking or emphatic refutation of their prejudices than that which is furnished by this disease. All its phenomena, all its relations, and its entire treatment, are bound up in its appreciable and obvious anatomical lesions, and are directly dependant upon them.

Sec. 2. *Infiltration.*—Edematous laryngitis consists, in its essential anatomical element, in an infiltration and a consequent tumefaction of the lax submucous cellular tissue, upon the anterior surface of the epiglottis, and around the edges of the glottis. Bayle's original description of the diseased parts is in the following words: "In all cases, the edges of the glottis are swollen, thickened, white and trembling; they form a swelling more or less prominent, fully infiltrated with serum, which is pressed out from the cellular tissue with great difficulty, even after free incisions have been made in it. * * * The edges of the infiltrated and swollen glottis are dis-

* Different appellations have been applied to this disease. Bayle, its first historian, called it "*Edema of the Glottis,*" or "*Edematous Laryngeal Angina.* Curveilhier calls it "*Submucous Laryngitis.*" Valleix, Grisolle, and many others apply to it indifferently the terms: "*Edema of the Glottis,*" and "*Edematous Laryngitis.*"

posed in such a manner, that every impulsion which comes from the pharynx turns them down upon the opening of the glottis, which is thus more or less obstructed, —while an opposite impulsion, from the trachea, throws these moveable folds upwards and outwards, upon the sides of the opening of the glottis, rendering the orifice comparatively or entirely free. * * * * The epiglottis is rarely intact; it is often very much swollen upon its edges."*

I have thought it best to add to the foregoing, even at the cost of some repetition, Hasse's minute and excellent description of the lesions. "The inflammation," he says, "assails the mucous membrane above the glottis, and particularly those of its folds which unite the epiglottis on the one hand with the root of the tongue and the arches of the palate, on the other, with the larynx, especially laterally, in the direction of the arytenoid cartilages —these folds being, as is well known, very lax and moveable, and susceptible of great extension. * * * Inflammation of the epiglottis exhibits, after death, the whole of the mucous membrane between the root of the tongue and the glottis uniformly tumefied, so that the outlines of the epiglottis and arytenoid cartilages, together with the numerous folds and recesses in the vicinity of those parts have became effaced. This is the result of inflammatory effusion into the interspaces of the loose cellular texture, subjacent to the mucous membrane. In proportion to the intensity and duration of the inflammatory process, this exudation is sometimes of a purely serous and liquid nature, so as to flow away upon incision; sometimes blended with coagulable materials, and jelly-like; sometimes, again, mingled in various proportions with pus; sometimes wholly purulent. Hence the tumor, which is always soft, lax and tremulous, like jelly, varies

*Dic. des Sci. Med., vol. xviii. p. 510.

greatly in color, being of a pale, or of a reddish yellow, sometimes of a dingy yellow or grayish white, and more or less opaque,—but, for the most part, superficially dotted with red. The swelling being dependant upon infiltration of the submucous cellular texture, cannot extend to the inferior surface of the epiglottis, because, there, no layer of cellular tissue exists; hence, the epiglottis has the aspect of having both its lateral edges bent over towards its nether surface, so as to form a narrow perpendicular groove, which is sometimes almost covered by the overhanging tumor. Neither does the swelling extend to the vocal ligaments—so that the term "*edema glottidis*," is not strictly correct—but the tumor hanging down on each side, and in size often exceeding a pigeon's egg, overlays the glottis in such wise as to leave but a narrow opening towards the posterior part which allows the column of air to pass out during expiration, but is closed up by any attempt at inspiration. In no example recorded, did the edematous infiltration beneath the mucous membrane show itself in any marked degree beyond the glottis."*

It will have been noticed in the foregoing descriptions, that while Bayle speaks only of a purely serous infiltration, Hasse states the infiltration to be sometimes serous, sometimes sero-purulent, and sometimes wholly purulent. There can be no doubt that the latter statement is the true one. Valleix says that, in more than three quarters of the cases, collected by himself, the infiltration was more or less mingled with pus. According to Valleix, in a few cases, the infiltration extends to the vocal cords.†

Sec. 3. *State of the Mucous Membrane.*—In a small number of cases, the infiltration above described constitutes the only alteration. The mucous membrane, and

* Hasse's Path. Anat., pp. 258—260.
† Mem. de l'Acad. Roy. de Med., vol. xi., p. 107.

the parts in the neighborhood of the glottis are quite free from any obvious disease. This, however, is not generally the case. In most instances, there are traces of inflammation in the mucous membrane, or some other lesion in or about the glottis. Valleix found the mucous membrane red in one-third of his cases, ulcerated in about one-sixth, in others detached from the subjacent tissues, and so on.

Hasse says: "The mucous membrane of the affected parts is always variously changed. Its surface is rough; its epithelium partly thrown off in single scales and tufts, or raised by serous fluid; it exhibits, here and there, blood specks, or scattered bright red vascular streaks; it is, moreover, easily separable, and, when separated, friable. The neighboring muscles, especially the arytenoid, are sometimes unaltered, at other times saturated in like manner with the effused fluid, in which case they have become blanched, or undergone yellowish or grayish softening.*

Another common lesion consists of ossification, caries, or necrosis, of the laryngeal cartilages, especially the cricoid. Valleix found some lesion of the cartilages in more than half his cases. In a few instances, ulceration or abscesses have been found in the pharynx. The foregoing alterations are frequently found, more or less of them, together.

ARTICLE III.—Symptoms.

Sec. 1. *Mode of Access.*—Edema of the glottis sometimes commences suddenly, with a formal and violent paroxysm of suffocative dyspnea. This, however, is a rare occurrence. Valleix says that of forty cases, the histories of which he had examined, two only commenced in this manner.† The access is generally somewhat

* Hasse's Path. Anat., p. 260.

† Mem. de l'Acad. Roy. de Med., vol. xi., p. 136.

gradual, although more or less rapid,—the disease usually reaching its stage of full development, in from a few hours to two or three days. The principal phenomena of this period are, a feeling of uneasiness in the larynx; an irresistible inclination to swallow, occasioned by the sensation of a foreign body in the pharynx, or upper part of the esophagus; efforts, by hawking, to clear the larynx and fauces; some difficulty of respiration; and slight hoarseness. The hand of the patient may be frequently carried to the seat of uneasiness in the larynx.*

Sec. 2. *Pain in the Larynx.*—This pain, either spontaneous, or excited by pressure, is one of the earliest and also one of the most constant symptoms of the disease. It is mentioned as present, in some form or degree, in 32 of 40 cases, by Valleix; and in only one of the remaining eight is its absence formally stated. The pain is not often at all urgent, and in most cases does not attract the notice of the patient until his attention is called to it. In many instances, instead of positive pain, there is a pricking sensation in the larynx, some uneasiness on pressure, the feeling of a foreign body in the throat, or a sense of strangulation.†

Sec. 3. *Pain in the Pharynx.—Difficulty of Deglutition.*—In a certain proportion of cases there is pain in the pharynx, independent of the act of swallowing. Pain and difficulty of swallowing are present in a large majority of cases; in many instances they are extreme, and sometimes the act of swallowing becomes impossible. In three of Valleix's cases, drinks were returned by the nose.‡

It results, then, from the foregoing statements that pain about the throat, in the larynx or pharynx, or both, varying in kind and degree, spontaneous, or excited by pressure or motion, is an almost invariable accompaniment of

* Dic. des Sci. Med., vol. xviii., p. 508.
†Mem. de l'Acad. Roy. de Med., vol. xi., p. 136.
‡Mem. de l'Acad. Roy. de Med., vol. xi., p. 138.

the disease. It was noticed in 38 of Valleix's 40 cases.*

Sec. 4. *Cough and Expectoration.*—Cough is neither an urgent nor a constant sympton. Bayle merely says that, in the progress of the disease there supervenes in some cases a slight and occasional cough.† It is mentioned in only 14 of Valleix's 40 cases, and in the most of these it was slight. In some cases the cough is dry; in others there is more or less expectoration, varying in character in different patients, and in no way distinctive of the disease. Both the foregoing symptoms are of secondary importance.

Sec. 5. *Voice.*—One of the most constant symptoms of the disease consists in an alteration of the voice. This becomes rough and hoarse, then more and more muffled, and finally either nearly or altogether extinct. In only one of Valleix's cases had it the croupal character.‡

Sec. 6. *Respiration.*—The capital and most characteristic symptom of edema of the glottis is the difficulty and embarrassment of the respiration. It is an invariable attendant upon the disease, and by the extreme and intolerable distress which it occasions, it concentrates and absorbs almost the whole attention both of the physician and the patient. It is necessary to describe this symptom in detail.

It has already been stated that, in a few cases, edema of the glottis may commence with sudden and extreme dyspnea. Generally, however, the difficulty of respiration, showing itself at a pretty early period of the disease, is at first only slight or moderate in degree; it subsequently goes on, more or less steadily and regularly, increasing in severity until it reaches its highest point of intensity.

There is a very striking peculiarity of the dyspnea, first noticed by Bayle, and since by many observers. This

*Mem. de l'Acad. Roy. de Med., vol. xi., p. 141.
†Dic. des Sci. Med., vol. xviii., p. 508.
‡Mem. de l'Acad. Roy. de Med., vol. xi., p. 146.

peculiarity consists in the great difference in the difficulty of *expiration* and of *inspiration*. The latter is very much more difficult and laborious than the former. Bayle states, without any qualification, that while inspiration is very difficult, noisy, and hissing, expiration is always performed freely and easily. This statement requires some qualification. It is generally but not absolutely correct. In a large proportion of cases, the expiration does remain quite free and unembarrassed; but not in all. Valleix says that in five of eighteen cases the expiration was more or less difficult; but that in these cases the expiration was less difficult than the inspiration.

The difficult respiration is persistent and continued, but in most cases it is marked at intervals by paroxysms of extreme suffocative dyspnea. The following is Bayle's vivid and truthful description of these frightful attacks: "When the paroxysm is violent," he says, "the patient, upright upon his seat, experiences an extreme difficulty in breathing; his shoulders are forcibly elevated, all his chest is in motion, inspiration is very laborious and noisy, while expiration remains free and facile; he is threatened with imminent suffocation; the face is pale and pinched, or flushed and swollen, with a fearful or wandering expression; some patients demand earnestly and imploringly that the larynx should be opened; others seek a cutting instrument with which to rid themselves of the substance that suffocates them; in many cases there are moments of fury during which patients are tempted to put a violent end at once to their agony and life; they beat the bed with their hands, are in constant and violent agitation, and give utterance to cries of terror and despair. In these extreme paroxysms, and even in those that are much less violent, the pulse becomes unequal, irregular, and sometimes intermittent. When the fit has subsided, the breathing may become comparatively easy, but the pulse continues feeble and irregular. Not unfre-

quently, after a very short respite, another paroxysm or a series of paroxysms, carries off the patient; but more commonly death takes place during the comparative calm that follows the fit."*

Sec. 7. *State of Pharynx.*—In most of the cases that have been reported no mention is made of the appearance of the pharynx, and its examination seems to have been generally neglected. Valleix says, however, that of thirteen cases, in which the fauces were examined, there was only one which did not exhibit some appreciable lesion. In all the others there was manifest redness, more or less extensive, of the mucous membrane, with or without tumefaction; in two instances the semi-transparence of the swollen tissue showed that the tumefaction was owing to serous infiltration.† In four of the five cases reported by Dr. Buck, there was inflammation, more or less extensive, in and about the fauces.‡

Sec. 8. *Signs derived from Touch.*—The edematous swelling of the lax sub-mucous cellular tissue, upon the upper side of the epiglottis, and along the edges of the glottis, constituting anatomically the disease under consideration, may be felt and recognized by the touch. This very important and positive means of diagnosis was first discovered by Tuilier; it was announced in a thesis presented to the Faculty of Medicine of Paris in 1815. Valleix and Dr. Buck, and there can be no higher authorities, add the testimony of their own repeated experience to the original statement of Tuilier. In Dr. Buck's five cases, before scarification was resorted to, the existence of the edema of the epiglottis was positively ascertained by the touch. Dr. Buck speaks particularly of the swelling of the *epiglottis* only, but in the third case, he says,

*Dic. des Sci. Med., vol. xviii, p. 509.
†Mem. de l'Acad. Roy. de Med., vol. xi., p. 149.
‡Trans. Amer. Med. Asso., vol. i., pp. 137, 144.

"while the end of the finger was pressing the epiglottis against the base of the tongue, the soft pulpy swollen edges of the glottis were felt rising up against it."* Valleix says, that of twelve cases, in which the exploration by touch was methodically made, the edematous swelling of the edges of the glottis was felt in eight. The swollen epiglottis, says Dr. Buck, conveys to the touch the sensation of a soft pulpy body, easily recognized and distinguished from the stiff rigid swelling of these parts in membranous laryngitis.

Sec. 9. *Physiognomy.*—The state of the face and its expression are such as might be looked for in a disease consisting essentially in a slow strangulation. The face is sometimes flushed, congested, and swollen; sometimes pale and sunken; the lips are livid, the eyes wild and staring; and the varying and commingled phases and degrees of bodily and mental agony, the dreadful sense of suffocation, the intense longing for fresh air, the consciousness of near and imminent danger, are vividly impressed upon the physiognomy.

Sec. 10. *General Symptoms.*—These are neither constant nor important. In some cases there is more or less febrile excitement; in others it is altogether wanting. The pulse is generally accelerated, becoming very rapid, feeble, and fluttering with the progress of the disease. The restlessness and agitation of the patient, at least before the gradual asphyxia is much advanced, are in proportion to the degree of dyspnea. There is sometimes thirst; the appetite may be diminished or lost. If there is any disturbance of the stomach or bowels it is quite accidental.

ARTICLE IV.—Causes.

Sec. 1. *Preliminary.*—Edematous laryngitis does sometimes occur spontaneously in persons at the time in good

*Trans. Amer. Med. Asso., vol. i., p. 139.

health, not suffering at the time with any general or local disease, and without any appreciable determining cause. This, however, is not common. It happened only three or four times in Valleix's 40 cases. In most instances the disease is connected with some general morbid condition or with some local affection.

Sec. 2. *Local Disease in and about the Glottis.*—The frequency of this complication has already been stated in describing the anatomical lesions of the disease. These primary affections, acting as determining causes of the edematous laryngitis are thus enumerated by Valleix: 1. Simple inflammation of the laryngo-pharyngean mucous membrane. 2. Ulceration, acute or chronic, of the larynx, and sometimes of the pharynx. 3. Simple abscess of the pharynx, and sometimes of the larynx. 4. Alterations, more or less profound, of the laryngeal cartilages, with submucous abscesses, or disease of the mucous membrane. 5. In rare instances, inflammation of an organ more remote, such as the tongue.*

Sec. 3. *Convalescence from Fevers.*—The frequent occurrence of edematous laryngitis during convalescence from low fevers was noticed by Bayle, the first historian of the disease. As to the primitive form of this angina, he very truly says, it comes on most frequently during convalesence from febrile diseases of a grave character, such as adynamic or ataxic fevers.† There was an extraordinary frequency of the disease in the New York Hospital, between the months of December, 1847, and February, 1848. During this period, says Dr. Buck, the season was remarkably rainy and wet, accompanied with very little snow, and characterized by the prevalence of erysipelas and typhus fever, as well as an asthenic type in other diseases, both in and out of the hospital.‡

---

* Mem. de l'Acad. Roy. de Med., vol. xi., p. 120.
† Dic. des Sci. Med., vol. xviii., p. 508.
‡ Trans. Amer. Med. Asso., vol. i., p. 135.

The following is a tabular view of the circumstances under which the forty cases, analyzed by Valleix, occurred:

During convalescence from grave fevers,	10
During convalescence from pneumonia,	4
In the course of erysipelas,	1
After scarlet fever,	1
After lithotomy,	1
During treatment of fracture, with fever,	1
During convalescence from cerebral congestion,	1
In the course of bronchitis,	1
In the course of hypertrophy of the heart,	1
In the course of elephantiasis,	1
In the course of laryngeal phthisis,	9
In the course of cancer of the larynx,	1
With syphilis,	2
During good health,	4
State of health not mentioned,	2

Sec. 4. *Age; Sex; Season.*—The following table shows the ages in 36 cases cited by Valleix:

Under 10 years,	2
From 10 to 20 years,	5
From 20 to 30 "	8
From 30 to 40 "	4
From 40 to 50 "	8
From 50 to 60 "	5
From 60 to 70 "	3
At 71,	1*

The disease is much more common in the male than in the female sex. Of Valleix's 40 cases, 29 occurred amongst males, and 11 amongst females.

It does not appear that season or weather has any very marked influence in the production of the disease. Of 39 cases, mentioned by Valleix, 21 occurred between Oc-

* Mem. de l'Acad. Roy. de Med., vol. xi., p. 121.

tober and March, and 18 between April and September.*

ARTICLE V.—Varieties and Forms.

Edematous laryngitis, as it has been described in the foregoing pages, has been divided, especially by Cruveilhier, into *primitive*, and *secondary*, and also into *acute* and *chronic*. The grounds of this division are obvious enough and it is only necessary to remark here that the strictly chronic form of the disease must be of extremely rare occurrence, if, indeed, it is ever met with.

But, further than this, Cruveilhier divides edematous laryngitis, or, as he calls it, *submucous* laryngitis, into two varieties;—first, the *supra-glottic*, the ordinary form already described; and second, the *infra-glottic*, in which the inflammation is seated below the glottis. M. Cruveilhier reports five cases of this form of disease. They were accompanied by necrosis of the cricoid cartilage, and by one or more abscesses, in immediate contact with it. In two instances, the abscesses opened into the esophagus. M. Cruveilhier regards the necrosis of the cartilage as the result of the inflammation in its immediate neighborhood.† It seems to me hardly proper to call this inflammation of the cellular tissue of the larynx, about the cricoid cartilage, followed by abscesses, and not accompanied by any infiltration of the submucous cellular tissue of the glottis, a form or variety of the disease under consideration.

Cases occurring in connexion with erysipelas have been elevated by some writers into a distinct form of the disease.

---

* Mem. de l'Acad. Roy. de Med., vol. xi., p. 123.
† Dic. de Med. et de Chir. Prat., vol xi., pp. 41—45.

ARTICLE VI.—March; Duration; Termination.

The usual progress of the disease is contained in the history of the symptoms, already given. This progress, or march, may, however, vary considerably in different cases. It would seem that in cases depending upon simple inflammation, the march of the disease is usually regular and gradual; while in those which supervene upon some chronic lesion, the access is not unfrequently announced by a sudden paroxysm of suffocative dyspnea. According to Valleix, the disease, when fully established, marches with a rapidity in proportion to the intensity of the inflammation.

The most striking feature in the march of the disease, consists in the violent suffocative paroxyms already described. These are present in a large proportion of cases. Bayle says they usually make their attack during sleep. They generally increase in frequency and violence with the progress of the disease. They occur more frequently during the night than during the day. The degree of relief in the intervals of comparative calm between the paroxysms, differs very much in different cases. Sometimes, mostly in the early period of the disease, it is very considerable; in other cases, and usually late in the disease, it is very slight.

The duration of the disease varies from only a few hours to two or three weeks. In a large majority of cases, however, unless the patients are relieved by a surgical operation, the disease is not prolonged beyond four or five days. This duration, according to Valleix, is generally longer in cases supervening upon chronic disease of the larynx, than in those that are primitive, or simply inflammatory.*

Death may take place during one of the suffocative

---

* Mem. de l'Acad. Roy. de Med., vol. xi., p. 162.

paroxysms, or in the period of comparative calm that follows. The latter is more frequent than the former—a fact that was noticed by Bayle. Of the cases, constituting the basis of Valleix's memoir, three only terminated in the midst of a violent paroxysm; in seven, death took place during a period of comparative calm; but in all the others, constituting a considerable majority of the cases, the fatal termination took place, neither in the midst of a distinct paroxysm, nor during a period of well marked repose, but in a state of steadily progressive asphyxia, depending upon the persistent and gradually augmenting difficulty of respiration. In only one instance was death quite sudden.*

ARTICLE VII.—Mortality and Prognosis.

Edematous laryngitis, unless relieved by a surgical operation, generally terminates in death. Bayle, when his first memoir upon the disease was written, in 1808, had seen seventeen cases—all of which were fatal. His subsequent experience did not induce him essentially to change his prognosis. Of the forty cases, collected by Valleix, nine terminated in recovery. This, it seems to me, is an unusually large proportion. It appears probable that the primitive form of the disease, occurring in persons otherwise in good health, is somewhat more susceptible of cure, than that which is connected with other lesions of the larynx, or supervenes in the course of some other disease.†

ARTICLE VIII.—Diagnosis.

A well marked case of edematous laryngiti , attended by its ordinary phenomena, is not very likely to be confounded with any other disease. Pain or uneasiness

---

*Mem. de l'Acad. Roy. de Med., vol. xi., p. 158.
†Mem. de l'Acad. Roy. de Med., vol. xi, p. 173.

about the larynx; the sensation of a foreign body in the throat; accompanied or followed by more or less difficulty of swallowing; laborious, difficult, and noisy inspiration, the expiration often remaining entirely or comparatively free; agitation; occasional paroxysms of suffocative dyspnea of extreme violence; and sooner or later signs of gradually increasing asphyxia,—constitute a combination of phenomena, very characteristic of this disease, and certainly not often found in any other. For an absolutely positive diagnosis, we must rely upon the distinctive physical sign dependent on the touch. Grisolle doubts the value of this last means of diagnosis; he says that in two or three instances, he attempted, but unsuccessfully, to reach with his finger the seat of disease; that the spasmodic contractions of the upper orifice of the larynx, and the efforts at vomiting obliged him to desist, and that the same thing had happened to Chomel, Blache, and others.* The testimony of Valleix and Dr. Buck, as well as of many others, leaves no doubt, however, of the practicability of this exploration.

Edematous laryngitis may sometimes be confounded with exudative inflammation, or true croup. In the latter, however, a careful examination of the fauces will generally exhibit patches of the effused fibrin; and any uncertainty that might still exist would be removed by the touch. Beside certain differences in the voice, cough, and breathing, which are, not always, but commonly, present—it will be remembered also that edematous laryngitis is a disease of adult life, while true croup almost always occurs in childhood. I do not know how frequent simple exudative laryngitis, or true croup, may be in the adult; but I suppose many of the cases which have been regarded and reputed as such, have been cases of edematous laryngitis. The latter disease, independent of the

* Traitè de Path. Int., vol i., p. 317.

class of cases occasioned by scalding water, does occur also in children, but it seems to be very unfrequent. It is a striking, and as it appears to me, a singular pathological fact, that it should occur so rarely, if it does at all, in connexion with membranous laryngitis.

It is said, further, that edematous laryngitis has been or may be confounded with purulent infiltration or abscesses in and about the larynx and pharynx; aneurism of the aorta pressing upon the trachea; a foreign body in the air passages; asthma, and so on. Such difficulties may sometimes be met with, but with our present means of diagnostic investigation, and a careful application of them, they will be so rare and exceptional as to be of but little importance.

ARTICLE IX.—Theory.

I do not think there can be any reasonable doubt as to the nature of this disease. Two principal opinions have been adopted in regard to it. One of these is that the disease is a simple dropsy, and that when inflammation is present this is accidental. This was the doctrine of Bayle. He regarded the disease as essentially unlike laryngitis. The other opinion is, that the disease is inflammatory, and that the cellular infiltration is the result of inflammatory action. I think this view is the true one. It is very ably, and I think quite conclusively argued and illustrated by Valleix. The principal reasons for it are these. In many cases, there is pus in the cellular tissue; these cases must at least have had an inflammatory element in them. In many cases, the infiltration, even if wholly serous, is evidently connected with and dependant upon some local inflammation in its immediate vicinity. The fact seems to be, in these cases, that a slight degree of inflammatory irritation spreads from the original inflammation to the loose cellular tissue about the glottis, and thus gives rise to the effusion. I do not say that there cannot be, or that there

is not, occasionally, an instance of pure, non-inflammatory edema of the glottis. Such an assertion would not be in accordance with our rigorous and positive philosophy. I only mean to say, that in very many cases, there is conclusive proof of the inflammatory character of the disease, and that in those where this proof is wanting, the fairest and most rational interpretation of all the phenomena is in no way inconsistent with this doctrine. No fact in pathology is better established, than that many inflammations, especially those of recent occurrence, and of moderate or slight severity, like that under consideration, leave no traces or results that are appreciable after death. The conclusion to which I come, then, is this, that edema of the glottis is the result of an inflammatory action, more or less violent, spreading in many cases from an original inflammatory centre in the neighborhood of the glottis, or extending from the mucous membrane covering the infiltrated tissue.

M. Fleury has controverted this view, and insists very earnestly on the purely dropsical and non-inflammatory nature of the disease. I have not seen his paper. It is quoted by Valleix.*

ARTICLE X.—Treatment.

Sec. 1. *Medical Means.*—The simply medical treatment of this disease, however prompt, energetic, and judicious, is generally unsuccessful. The whole history of the disease bears witness to the truth of this. Still, it is none the less true, that cases are sometimes saved, apparently by treatment. Cruveilhier is very confident that he has arrested the progress of the disease in many instances. The means, generally used and principally relied upon, are bleeding, general and local; emetics; mer-

* Mem. de l'Acad. Roy. de Med., vol. xi., p. 129.

curials; and blisters to the throat. I do not know that there is any objection to the proper and timely use of these means; only let it be remembered that they are much more likely to fail than to succeed, and that they are not to be depended upon.

Sec. II. *Scarification of the edematous parts.*—Dr. Marshall Hall published, in 1821, in the Medico-Chirurgical Transactions, an account of four cases of inflammation of the throat, occurring in children and occasioned by attempting to drink scalding water from the mouth of a teakettle. In speaking of the treatment, he says: "If the suffocation were imminent, I should not hesitate to propose laryngotomy, or tracheotomy, and the former would appear to reach below the seat of the affection.—*But I now regret that I did not propose scarification of the epiglottis and glottis, so as to evacuate the blisters.*" This most important and sagacious suggestion seems to have attracted no attention.

M. Lisfranc published a paper on the disease in the Journal Generale, for 1825, in which he gives a history of five cases treated by scarifying the edematous parts. I have not been able to procure this article, and I copy the following account of the operation, written by Valleix, from Dr. Buck's paper: "M. Lisfranc first conceived the idea of evacuating by means of incisions more or less numerous, the serous or sero-purulent fluid engorging the submucous tissue of the larynx. This surgeon cites five cases in which this operation was followed by an immediate change, and subsequently by a complete cure. In a sixth case, several similar operations, at variable intervals, acted only as palliatives. Extensive lesions of the larynx existed, which at length caused the death of the patient.

"The following is M. Lisfranc's mode of scarifying the larynx: Take a long, narrow-bladed, slightly-curved bistoury, in a stiff handle, protected with a strip of linen to

within half an inch of the point. Let the patient open his mouth wide, and have the jaws kept apart by means of a cork placed far back between the molar teeth, one end of the cork being held by an assistant. The patient being placed in front of the operator with his head supported against the breast of an assistant, pass the index and middle finger of the left hand into the mouth, till they reach the swollen edges of the larynx, glide the bistoury flatwise upon the finger, holding it as you would a pen. On reaching the larynx, direct the edge forward and upward, then after having elevated the handle, depress it gradually, at the same time pressing gently upon the point. At first a few punctures only should be made, as by the aid of pressure two or three small incisions are sufficient. They may easily be multiplied in the same way if judged necessary.

"These scarifications produce a flow of the infiltrated matter and sometimes a slight oozing of blood, which effects a salutary disgorgement. The cough, excited by a few drops of serum falling into the larynx, contributes much to diminish the swelling. The immediate beneficial results of these scarifications might be partially defeated, by their occasioning more or less inflammation of the larynx and surrounding parts. In such a case recourse must be had to general or local bleeding, which would soon disperse this traumatic inflammation."*

This most interesting and important announcement of the celebrated French surgeon seems to have attracted but little favorable notice. It is difficult to understand the causes of this, unless they are to be found, in part at least, in the unfriendly personal relations so notoriously existing, for many years, between M. Lisfranc and most of his distinguished contemporaries, and the ferocious

*Dr. Buck's paper on Edematous Laryngitis. Trans. Amer. Med. Asso., vol i., p. 150.

and violent hostility which he so constantly exhibited towards them. Some ten years after the publication of M. Lisfranc's memoir, M. Cruveilhier says, certainly with a deliberate rudeness—a much harsher term would be more appropriate—as inexcusable as it is unaccountable: "Finally, M. Lisfranc has proposed to make scarifications upon the infiltrated parts. *I doubt whether this litlitte operation has ever been performed!*"* M. Valleix, some twenty years after the appearance of Lisfranc's memoir, remarks that the operation proposed and practiced by him, *ought to be taken into serious consideration.* He thus enumerates and answers the principal objections that had then been made to it. First, it was alleged that in a large number of cases, the edematous swelling could not be recognized by the touch. The answer to this is, that if the exploration is properly and skilfully made, the edematous tumors *can be, and are,* in most cases, recognized; and that where they are not felt, the operation is not to be attempted. The second objection consisted in the alleged difficulty of the operation. "But," says M. Valleix, "this objection is not a serious one, since the difficulty was overcome so successfully in the cases of M. Lisfranc." Finally, it was said, that admitting the possibility of making the scarifications, only a slight amelioration could be obtained, since, according to the observations of Bayle, the infiltrated fluid escapes very slowly, even when numerous incisions have been made. To this objection, it is sufficient to reply, that in Lisfranc's cases, the relief was immediate, and consequently the escape of fluid must have been sufficiently free.†

It appears, also, that M. Marjolin, on some occasion, though at what time I am unable to say, lacerated the edematous edges of the larynx with a piece of althea root,

---

*Dic. de Med. et de Chir. Prat., vol. xi., p. 41.
†Mem. de l'Acad. Roy. de Med., vol xi., p. 182.

and that the patient recovered. Acting on this hint, M. Legroux, I suppose in 1839, proposed lacerating the edematous tumors with the finger nail, sharpened and roughened for this purpose. In two cases, M. Legroux says, he saved his patients by this simple means. In regard to all the foregoing direct surgical measures, M. Valleix very sensibly and properly says: "It would be very wrong to contemn or neglect them, for it is certain that many times the lives of patients have been saved by them."*

Mr. Frederick Ryland, the author of an elaborate and in many respects very valuable monograph upon diseases of the larynx and trachea, and which has been pretty extensively circulated in this country, by its reprint in Dunglison's American Medical Library, writing as late as 1837, disposes of this most grave and important matter in a very summary and quite a different manner. After alluding first to the plan of M. Tuilier, of making pressure from time to time, by means of the finger, upon the distended lips of the glottis, in order to promote the absorption of the effused serum, and then to Lisfranc's operation, he says: "But both plans are fantastic, very difficult, if not impossible of accomplishment, and more likely to increase than diminish the existing mischief."†

Mr. Hodgkin, in 1840, says: "Were it possible to effect a slight scarification of the edematous parts, not only immediate relief but permanent advantage would probably be derived from it."‡

Such are the principal facts, as far as I have been able to ascertain them, in the history of this operation, up to the years of 1847 and 1848. At that time, a most important addition was made to our experience, and a new and fresh interest given to the subject by the observations

*Mem. de l'Acad. Roy. de Med., vol. xi., p. 184.
†Ryland on Dis. and Inj. of Lar. and Trachea.
‡Lect. on Morb. Anat., vol. ii, p. 51.

of Dr. Gurdon Buck, of New York, one of the surgeons of the New York Hospital. It has already been stated that between the months of December 1847, and February 1848, there occurred in the hospital no less than seven cases of this disease. Dr. Buck, in his own words, more than a year previous to the occurrence of the first of these cases, and without any knowledge at that time of any similar method of cure having been practiced or proposed by others, was led to the conviction that scarrifications of the edematous edges of the glottis, as well as of the epiglottis, might be employed as an effectual means of relief in this formidable disease.

The following is Dr. Buck's description of his mode of operating:—

The patient being seated on a chair, with his head thrown back, and supported by an assistant, he is directed to keep his mouth as wide open as possible; and if there be any difficulty in this respect, a piece of wood an inch and a quarter in width, and half an inch in thickness, is to be placed edgewise between the molar teeth of the left side. The fore-finger of the left hand is then to be introduced at the right angle of the mouth, and passed down over the tongue till it encounters the epiglottis.

But little difficulty is generally experienced in carrying the end of the finger above and behind the epiglottis so as to overlap it and press it forwards towards the base of the tongue. In some individuals the finger may be made to overlap the epiglottis to the extent of three-fourths of an inch.

Thus placed, the finger serves as a sure guide to the instrument to be used. The knife is then to be conducted with its concavity directed downwards, along the finger till its point reaches the finger nail. By elevating the handle so as to depress the blade an inch to an inch and a half further, the cutting extremity is placed in the glottis between its edges; at this stage of the operation the knife is to be slightly rotated to one side and the other, giving it a cutting motion in the act of withdrawing it. This may be repeated without removing the finger two or

three times on either side. The margin of the epiglottis, and the swelling between it and the base of the tongue may be scarified still more easily with the same instrument, or scissors curved flatwise may be employed for these parts, guided in the same manner as the knife.

Though a disagreeable sense of suffocation and choking is caused by the operation, the patient soon recovers from it, and submits to a repetition after a short interval. In every instance the operation has been performed twice, and in some three times.

Before proceeding to the operation, it has always been explained to the patient that the seat of his difficulty was a swelling at the top of the windpipe, preventing the air from entering, and the object of the operation was to cut it and let out fluid, and thus give him relief. This explanation corresponds so exactly with his own sensations, which refer to the top of the thyroid cartilage as the seat of obstruction, that he readily submits to the proposed operation, and renders all the co-operation in his power for its performance.

A slight hemorrhage follows the scarifications, and should be encouraged by gargling with warm water. In one instance the quantity of blood mixed with sputa amounted to half a wineglassful.

Dr. Buck's first operation was performed on the 13th of April, 1847. The patient was a seaman, thirty-one years old. After exploring the parts with the finger, and ascertaining the existence of the swelling of the epiglottis, and also allowing his two assistants to do the same, he scarified the aryteno-epiglottic folds and the epiglottis, partly with scissors curved flatwise, and partly with a sharp pointed bistoury, guarded to within one-third of an inch of its point by a narrow strip of adhesive plaster wound around it, and conducted to the parts upon the fore-finger of the left hand, previously introduced at the right angle of the mouth. Two or three repetitions were requisite, at short intervals, to complete the operation. The patient hawked up three or four teaspoonsful of blood, mixed with mucus, and expressed himself as feel-

ing relieved. He was then bled to the extent of twenty ounces, and took grain doses of tartar emetic. He continued to improve daily, and was discharged well, on the 23d.

Dr. Buck's second case was operated upon, January 13th, 1848. The patient was thirty years old, and was attacked with the disease the day before. In addition to the ordinary well marked symptoms of the disease, the epiglottis was distinctly felt to be swollen, and its margin thickened and folded together, both by Dr. Buck and Dr Swett. The pouches between the epiglottis and the base of the tongue were filled up by a soft pulpy swelling. At 10½ o'clock, Dr. Buck scarified the edges of the glottis as well as the epiglottis, and the swelling anterior to it, with the bistoury and curved scissors, as in the first case. Slight hemorrhage followed, and was encouraged by a warm water gargle. The exploration of the parts, as well as the operation itself, did not cause much disturbance, and the patient expressed decided relief. At 2½ o'clock, P. M., the same day, he breathed more calmly and felt still further relief. He passed the following night very comfortably, and the next morning expressed himself quite well. The swollen parts were ascertained by the touch to have very much diminished. He recovered without any repetition of the scarifications.

The third operation was done on the 29th of February. The patient was 50 years old. The epiglottis was examined by the touch, by Dr. Buck, and by several of his colleagues, and felt to be swollen, thickened, especially at its margin, pulpy and convoluted upon itself. The patient had been bled, vomited, and had taken twenty grains of calomel. The edges of the glottis and epiglottis were scarified with a curved instrument, designed by Dr. Buck expressly for this purpose, the operation being repeated two or three times, at a few moments' interval. The patient was relieved and continued comfortable till the sec-

ond day, when the dyspnea having increased, the scarifications were repeated with the guarded bistoury, but the operation was not satisfactorily done. On the third day the patient was worse, and the epiglottis was felt to be more swollen. At 3 o'clock, P. M., the scarifications were repeated with the curved knife. At 6 o'clock, P. M., although the patient expressrd himself as somewhat relieved, the dyspnea was so urgent that Dr. Buck and Dr. Hoffman urged him to submit at once to tracheotomy. This he refused to do. An erysipelatous blush had shown tself on the right cheek. On the following day the patient was rather better, and then steadily improved till he vas well. He took calomel and antimony regularly during the continuance of the disease.

The third case occurred nearly at the same time and was cured by the same means. There was nothing special in its history to render it worth while to give an abstract of it.

The fifth operation was performed on the 5th of March. The patient was an athletic seaman, 24 years old. "He lay," says Dr. Buck, "upon his right side, with his face near the edge of the bed, his eyes closed, and his countenance pale and of a leaden hue. His features were altered and of an almost death-like expression; the skin was bathed in perspiration, and every muscle of the trunk seemed to be brought into powerful action to perform the act of inspiration, which was protracted and sonorous, while that of expiration was short, easy, and unobstructed. This condition had existed about six hours." The evening previous, Dr. Swett had ascertained by the touch the existence of a moderate degree of swelling of the epiglottis. No time was lost in scarifying the edges of the glottis and epiglottis, with the curved knife. The operation was repeated two or three times at short intervals, and followed by a small quantity of blood in the sputa. After waiting half an hour, it was thought by Dr. Buck

and Dr. Swett, most prudent, considering the urgency of the symptoms, not to rely exclusively upon the scarifications, but to give the patient the additional chance of tracheotomy. This was accordingly performed without delay. Great difficulty was encountered from the depth of the trachea, the swelling of the superjacent parts, the resistance of the patient, and the copious venous hemorrhage. On incising perpendicularly the three superior rings of the trachea, the air rushed in with great force, and breathing was soon established through the artificial passage. The happiest effects promptly followed. The patient, from being exceedingly turbulent and excited, became tranquil and submissive. The respiration grew calm and required no effort, and the countenance resumed its natural expression. On the following day the patient was doing well and the swelling of the epiglottis had decidedly diminished. After removing the tube from the trachea, to cleanse it, the sides of the wound were pressed together so as to close the opening, when it was found that respiration through the larynx could be performed with considerable facility, showing clearly that the swelling of the glottis had already very much diminished. On the second day the patient was able to breathe with natural facility through the larynx. He recovered rapidly and entirely.*

Such is a brief abstract, given in good part in his own words, of Dr. Buck's five cases.

They constitute, it seems to me, one of the most interesting and brilliant series of cases to be found in the records of medical art. It is very true that the operation, as has already been stated, was not a new one, and that it had been several times successfully performed many years ago. But it is also true that it had not only failed to attract any general attention, and to establish itself in

*Trans. Amer. Med. Asso. vol. i, pp. 137, 144.

the confidence of the medical public, but it had been doubtingly and disparagingly spoken of by one, at least, of the most distinguished and authoritative contemporaries of its author. Dr. Buck was not aware that the operation had ever before been either performed or proposed. It may perhaps turn out, hereafter, that these five successive and successful cases have been marked by that unwonted favorable fortune which seems to accompany, so frequently, the advent and the early history of new remedies and new methods of treatment, and that occasional or frequent failures may occur to shake the confidence which these cases have created in the operation, and to lower in a corresponding degree our estimate of its value; but there is every reason, I think, that can be derived from the nature of the disease, and of the operation, not only to hope but to believe that such wi l not be the case; and that this simple, direct, and rational method of cure, first devised and performed by Lisfranc, and after the neglect if not the general forgetfulness of quarter of a century, again originated and revived by Dr. Buck, will take its fixed and permanent place amongst the established and most valuable resources of art. One of my principal objects for making this compilation was to aid in diffusing an adequate knowledge of this operation.

The choice of an instrument for the performance of this operation is a matter of some importance. Lisfranc used a long narrow-bladed slightly curved bistoury in a stiff handle, protected with a strip of linen, to within half an inch of the point. Dr. Buck, in his two first cases, made use of a sharp pointed curved bistoury, guarded to within one-third of an inch of its point by a narrow strip of adhesive plaster wound around it, and of scissors curved flatwise. He then had a curved knife designed expressly for the operation. Its general form is very much like that of the common gum lancet, with the fixed handle, used by dentists. It is about an inch longer, and the

curve, instead of being half an inch or so in length, as in the lancet, is about an inch long. It is not probable that practitioners will generally provide themselves with Dr. Buck's knife. It is important for them to know that the curved bistoury properly guarded, or the dentist's gum lancet, will answer the purpose. For want of a better, and in case of emergency, an instrument might be made by fastening, simply by winding thread around them, the blade of a common gum lancet to a straight stiff handle, of suitable length. Let it be remembered that the operation is never to be omitted or deferred for want of exactly proper or suitable instruments, since it can be done with such as are of ruder contrivance and less adapted to the purpose even than any above mentioned. In any event the physician has his index fingers; let him roughen and sharpen the nails of these, and he may thus lacerate and tear the infiltrated tissues so as to give exit to their contents.

Sec. 3. *Tracheotomy.*—Setting aside, for the present, the preceding operation, or supposing it to be for any reason either impracticable or unsuccessful, there can be no doubt whatever, of the great value and the paramount importance of tracheotomy. In case of either of the above contingencies, it ought undoubtedly to be resorted to, and it ought to be performed, always, before the phenomena of asphyxia have become much developed. The chief cause of its frequent failure is without doubt to be found in its having been too long delayed.

ARTICLE XI.—Definition.

Edematous laryngitis, or edema of the glottis, is a serous purulent, or sero-purulent infiltration of the lax submucous cellular tissue of the glottis and its immediate neighborhood; affecting especially the aryteno-epiglottic folds, the upper surface and the borders of the epiglottis, ren-

dering the tissue tense and tumid; accompanied in most cases with a pale, whitish, red, or blueish red color, or with some other morbid condition of the mucous membrane covering the infiltrated parts; sometimes occurring suddenly, but in most cases coming on somewhat gradually, and marked by the following symptoms, to wit:—pain, or uneasiness, more or less distressing, at the upper part of the larynx; a sensation of a foreign body lodged in the posterior fauces; cough; hoarseness, feebleness, or loss of voice; in many cases, more or less difficulty of deglutition; in all cases, difficult and laborious respiration, the inspiration usually much more so than the expiration; the dyspnea constant, but attended by occasional paroxysms of terrible and frightful intensity, and steadily increasing in degree and severity, unless relieved by art; the infiltrated and tumefied parts capable of being reached and their condition appreciated by the finger: the march of the disease rapid; its duration short, varying from a few hours to a few days; occurring, in nearly all cases, in subjects already suffering with disease, and especially in patients convalescing from fevers of a typhoid character; and in persons already affected with some local inflammation in the vicinity of the glottis; terminating almost constantly in death, unless relieved by art, only to a very moderate extent under the control of medicine, but susceptible of entire relief, in most cases, by scarification of the infiltrated tissue, and the consequent escape of the effused fluid, aided, where there is a pressing necessity for it, by tracheotomy.

ARTICLE XII.—History and Bibliography.

The first historian of edematous laryngitis, in any degree complete and authentic, was Dr. G. L. Bayle, of Paris. The disease is his, by the same title that albuminuria is Dr. Bright's. His original Memoir on Edema of the Glottis, or Edematous Laryngeal Angina, was read before the Society of the School of Medicine, of Paris, on the

18th of August, 1808. This memoir was not published till 1819, when it appeared in the Journal de Medecine et de Chirurgie. The first publication by Bayle, appears to have consisted of the substance of this memoir, as an article in the Dictionary des Sciences Medicales, in 1817. This article contains a very clear, succinct, and accurate account of the disease, to which, subsequent and more varied and extensive observations have made but few additions.

Several of the older anatomists and pathologists, amongst whom may be mentioned Bonetus, Morgagni, and Lieutaud, had seen and described the edematous condition of the glottis, and were aware of its formidable nature, but they left no full and explicit account of the disease. Bichat had, evidently, a very correct knowledge of the disease. In his Descriptive Anatomy, published before the appearance of Bayle's Memoir, he says: "It is certain that the portion of the laryngeal mucous membrane which forms the superior opening of the larynx, is subject to a peculiar species of serous engorgement, which does not manifest itself in any other place, and which, thickening very greatly the walls, suffocates the subjects in a very short time." In another place, after giving some account of experiments upon dogs, in which he made incisions below the tongue and pierced the epiglottis, he says: "In one instance, a dog, submitted to this experiment, died the following day, with a serous angina, exactly like that with which patients are all at once suffocated, and which has its seat in the two folds of mucous membrane extending from the arytenoid cartilages to the epiglottis."*

The Essay of Tuilier was published as a thesis in 1815. It was important and valuable principally from its containing an account of the signs of the disease, derived from the touch. Bayle says of it: "There will be found

*Mem. de l'Acad. Roy. de Med., vol. xi., p. 88.

in this essay—1st. A report of four cases which had not before been published. 2nd. An account of the pathognomonic palpable sign of the disease. And 3d. Various points of doctrine very ably discussed, especially that relative to the introduction of a sound into the larynx, proposed in 1813, by M. Louis-Benoit Finaz de Seizel.—I have not seen this thesis of Tuilier; and I derive my knowledge of it from Bayle and Valleix.

Lisfranc's memoir was published in the Journal Generale for 1825. Cruveilhier's article, in which he expresses his disbelief in the fact of Lisfranc's operation ever having been performed, is contained in the eleventh volume of the Practical Dictionary of Medicine and Surgery, published in 1834. Trousseau and Belloc's prize essay upon laryngeal phthisis, containing important observations upon the disease, was published in 1837. Legroux recommended lacerating the swollen parts with the finger nail, in 1839.*

The full and elaborate memoir, by Valleix, is contained in the eleventh volume of the Memoirs of the Royal Academy of Medicine. The occasion of its being written was a question proposed by the Academy in the following terms: "*To ascertain what are the causes of edematous laryngeal angina (edema of the glottis); to make known its march, its successive symptoms, and its differential diagnosis; to discuss, in its treatment, the advantages and disadvantages of tracheotomy.*" The memoir occupies one hundred and ten pages, in quarto, of the volume, and, it is hardly necessary to say, is marked throughout by the clearness, ability, and sound practical philosophy of its author, and of the school of observation to which he belongs.

Dr. Buck's paper is contained in the first volume of the Transactions of the American Medical Association.

---

*Valleix. Mem. de l'Acad. Roy. de Med., vol. xi., p. 89.

ART. III.—*Cases at the Louisville Marine Hospital.* By DAVID W. YANDELL, M. D., of Louisville, Ky., Attending Physician for the Faculty at the Hospital.

Case 1. *Gastritis—death after seventeen days illness—gastric mucous membrane red and friable.* Michael Brosman, æt. 30, laborer, a hard drinker, was admitted into the hospital on the 29th of January. Ten days before, after having been on a long "spree," he was seized with severe diarrhea. This was in New Orleans. The next day he took a boat for Louisville. Notwithstanding the free use that he made of brandy and water to check the disease, instead of improving, he grew worse, and on the fifth day from port he felt an acute pain in the epigastrium, and soon after everything he swallowed was rejected. His discharges grew less and less frequent, and at the end of forty-eight hours, had entirely ceased. He vomited almost incessantly small quantities of bilious matter, which he described as being excessively bitter. All drinks which he endeavored to take, were instantly rejected. He had very acute pain over the epigastrium, while the remainder of abdomen was entirely free from it. His thirst, which was almost intolerable, he feared to satisfy, because the smallest quantity of water taken into the stomach produced vomiting. He supposed he must have had fever, though he never counted his pulse. His skin was very dry and hot—his mouth parched and burning. During the trip from New Orleans, three deck passengers died from cholera. He had had slight disposition to general cramp, and actually suffered several times with very painful cramps of his hands and feet. He was unable to sleep; had slept none for several days in succession; had been troubled with frightful sights, one of which, in particular, had greatly distressed and alarmed him,—a horse without a head, that appeared to be stand-

ing on the foot of his bed. Five days passed on in this way; the boat reached Louisville, and the patient was brought to the hospital. The following was his state at this time:—

His countenance was pale, and expression both anxious and heavy; he was very feeble, and spoke with a faint husky voice. The tongue was covered with a white coat—intensely red at edges and tip, dry and cool. No stools for three days. Patient had vomited repeatedly in the preceding twenty-four hours; all ingesta were promptly ejected. Thirst; anorexia; cephalalgia; mouth dry and parched; skin relaxed, cool and covered with a clammy perspiration. Pulse was 90, small and very feeble. Respiration laborious, heavy and slightly accelerated. Intellectual faculties obtuse. Hands and feet corrugated. Patient complained of great pain over the region of the stomach, where the tenderness was exquisite on pressure. The remaining abdominal viscera appeared, on palpation at least, healthy.

My prescriptions for the morning were small quantities of calomel and morphine, given at short intervals until sleep was procured; leeches to the epigastrium, to be followed, if it did not, by its weight, excite too much pain, by a flaxseed poultice; in the event of its being disagreeable, cloths, wrung out of warm water, were to be applied, in order to assist the bleeding from the leech-bites. Small pellets of ice were allowed the patient as often as he desired, and this was the case almost incessantly. At bedtime, if the vomiting continued and the patient had slept none, the quantity of morphine was to be increased and mustard sinapisms were to be applied to the spine over the origin of the gastric nerves. A stimulating cathartic injection to be administered immediately.

On the following day there was a slight amendment; the vomiting had not altogether ceased, but it was less copious and less frequent; the patient had been able to

retain a small quantity of mucilage that he had taken; the pain in the stomach was less; the tenderness very slightly, if at all, diminished. Bowels moved twice; stools thin and yellowish. The patient slept a few hours —awoke delirious, and continued somewhat so at visit. Pulse 100; skin not so cool; dry. Other symptoms materially the same as on the day before. R. Leeches, anodyne injections, ice, cloths wrung out of ice-water and ice in substance over the stomach. Omit calomel, and give morphine only, every few hours.

During the next twenty-four hours, the state of the patient, in some respects, steadily improved. The vomiting ceased; the pain and tenderness disappeared; the thirst abated; the delirium passed away. Still the pulse retained its frequency and adynamic characters; the tongue continued red, and had become dry and coated with a brownish fur; the teeth were covered with sordes; the respiration was not less laborious; the countenance remained unchanged, and the patient expressed himself as feeling no better. His bowels had been operated on but once. Continue ice; omit other prescriptions.

The condition of the patient now assumed the characters so universally observed, where cholera prevailed, which followed violent attacks of that disease The generally low, muttering delirium, alternating with extreme sluggishness of the intellectual faculties; the hot, dry skin; the quick, small and feeble pulse; the dry and parched mouth; the glazed and dry tongue; the intense thirst; the complete anorexia, and the extreme physical weakness which so constantly supervene in severe cases of cholera, after the acute symptoms have subsided, and especially when the disease is passing to a fatal termination, were all present in this instance.

All appreciable physical, and, indeed, rational signs of gastritis disappeared for the space of four days, during which time the symptoms were those above described.

when, on the morning of the 8th of February, the patient complained of pain in the pit of the stomach, and this organ again became tender on pressure.

On the 7th, copious epistaxis set in, and continued, notwithstanding the repeated application of cold and astringents, and the internal administration of these latter substances in large quantities, for thirty-six hours; when the house pupil deemed it necessary to resort to tamponing the posterior nares, by which the hemorrhage was arrested. During this time the nurse thinks that the patient must have lost two quarts of blood.

At the clinic, on the afternoon of Friday, (the 8th) the condition of the patient was as follows: Great pain and tenderness, on pressure, in epigastrium; skin cool; pulse 115, small and thready; face heavy; mind dull; thirst; loathing of food; voice feeble; respiration labored; mouth and lips dry; inside of mouth and fauces painful, and covered by a distinct diptheritic eruption; tongue dry, glazed, brownish in centre, and intensely red at edges and tip. Three alvine dejections in preceding twenty-four hours; thin and watery. Great increase of debility seemed to accompany the development of the eruption.

Prof. Bartlett coincided with me in the use of a large blister over the stomach, and the administration, at intervals of four hours, of six grains of calomel and half a grain of morphine.

That night the features became perceptibly altered; the pulse continued frequent; the voice grew more and more feeble, hiccough, vomiting from time to time, wandering delirium, and the patient rapidly sank till Sunday, the 10th, when, at 11 o'clock, he died.

Postmortem Examination.—Mucous membrane of the stomach of a bright red color, along lesser curvature and pyloric orifice, and of a dark grayish hue over remaining portion; softened throughout. Mucous membrane of duodenum, at its superior third, red and somewhat softened.

In this case, the epigastrium was the seat of an acute pain, which did not, however, as in most instances, continue throughout the entire course of the disease, there being an interval of four or five days, during which the inflammation had evidently been partially subdued, when there was no pain whatever complained of by the patient.

There is a case related by Andral, in his Clinic, of gastritis arising from over-eating during convalescence from cholera, in which the following train of symptoms was observed, without there being the *slightest pain in the epigastrium:* eyes dull and sunk, as when he had cholera; tongue presented nothing particular; burning thirst; vomiting; no pain in epigastrium or rest of abdomen; pulse frequent; skin not hot; some liquid stools.

For twenty-five days, patient remained in a state of continued fever, with tongue constantly dry and red; burning thirst; constant nausea; occasionally vomited either thready mucus, or yellow or greenish bile. *Abdomen, including epigastrium, was free from pain in all its points.* Obstinate constipation. Died, as if exhausted, without a struggle and with intellect perfect.

It was my misfortune, last summer, during the prevalence of the cholera, to meet with cases corresponding to the one which I have condensed from the great work of Andral; but, at the time, being unable to make a note of them, I cannot report them.

Touching the symptoms of gastritis, Andral holds the following language: "There is no symptom necessarily connected with the disease which it indicates in very many cases, and there may be acute gastritis without vomiting and without pain, as there are instances of pleuritis without stitch in the side, and pneumonia, without the rust-colored expectoration."

Case 2. *Wound of the Brain—Epileptiform symptoms—Death three months after—Abscesses in the Brain.*—Matthias Gross, æt. 27, born in Strasbourg, of feeble health

and dissipated habits, was received into hospital on Nov. 27th, for traumatic inflammation of left eyelid. Having had, on the evening of admission, several slight, short, epileptiform attacks, he was transferred to medical wards, where I first saw him on the morning of the next day.—His physiognomy was stupid, almost fatuous; mind same; answered first questions in French; soon after, run off into a low, listless tone, in German. Surface of body pale and cool. Pulse 60, feeble. Tongue furred on middle and tip, edges clean and smooth; moist. Says his appetite is good; no thirst; bowels costive. Complains of dull heavy pain in the head—constant, but more severe at one time than at another. Gets up in the night and wanders about; does not seem to know what he wants. Has fits at short intervals during the day—they were also brought on by lifting him up in bed, and by addressing him suddenly in a sharp tone of voice. They were slight and lasted but a few minutes.

The wound of the eyelid excited no attention, until one day the patient told me that three months before his admission into the hospital, it had been inflicted with a pocket knife in a street brawl. He had hardly stated this much, when he was seized with a convulsion, and all further replies to my questions became impossible. A careful examination of the wound only revealed that in depth it reached to the bone, and its width was equal to that of the large blade of a common Congress pocket-knife. At the visit, on the following day, I learned that the patient had received, on the same occasion, a stab in the abdomen, which confined him to his bed for two weeks. A few days before leaving his bed, he had several convulsions. They were slight, however, and only of a moment's duration—so slight and so brief that they did not excite his attention, until he found that they gradually increased in frequency; and, finally, during the four or five succeeding weeks, at least, they amounted to fifteen or

nty during the twenty-four hours. The general health became impaired. He had no appetite; could get no sleep; emaciated rapidly, and lost his mind.

The general appearance and air of the patient led Dr. Bartlett to suspect that he might be guilty of onanism.—He consequently desired me to have him carefully watched. Although this was done, for some time, no proof was discovered of indulgence in this practice.

Things wore gradually on. The patient lost all power of intelligible speech, and mumbled answers to my questions, each attempt to speak being followed immediately by a convulsion. The symptoms grew daily worse; hectic fever and night sweats came on, and soon after colliquative diarrhea; the pulse became more and more feeble; the intellectual faculties were finally altogether destroyed, and the patient, after lying for two days in a state of profound stupor, died on the

Postmortem Examination.—On removing the skull cap, a knife-blade, an inch and a quarter in length was found projecting into the substance of the brain. It had entered the cavity of the cranium on a line with the superior and inner third of the orbital plate of the frontal bone just below the superciliary ridge, and was so firmly imbedded in the bone that it was impossible to remove it.—Externally the blade had been broken off on a line with the bone, which accounts for its not having been discovered in the examination of the wound. Three large abscesses, communicating with each other, were found in the left hemisphere of the cerebrum—the first situated at the point of the blade, the other two placed below and internal to it. The greater part of the cerebral mass upon that side, was in a softened and even pulpy condition.—The other organs healthy.

Louisville, Ky., Feb. 20, 1850.

ART. IV.—*Programme of a Premium offered by the Society of Pharmacy, of Paris.* Translated for this Journal from the Journal of Pharmacy, December, 1849.

It is a question, that, for a long time, has engrossed the attention of pharmaceutists, how they might be able to make a substitute for the sulphate of quinine; or, at least, so to reduce the price as to admit of its use in all cases, in which its exhibition is attended with benefit.

This question has been examined, in its different aspects, in a great number of publications: it would be use less to enter into detail, concerning the advantages attached to its solution.

The Society of Pharmacy thought that the answer to the problem might be attempted, with some chance of success; and that, in the present state of science, it might not be impossible to prepare the sulphate of quinine directly; therefore, they have resolved to make an appeal to the chemists on this subject, and hope they will receive an answer.

It would have been, but a few years since, great folly to demand the processes of chemistry to create directly, with purely inorganic elements, products generated, up to that time, solely by the influence of life.

But, in its onward march, science has shown that it already possesses a certain class of bodies, which it is able to form directly and entirely, without the living tissues, in which they are ordinarily developed.

Thus, urea, to cite an example admitted by all the world, can be produced, entirely, from its carbonate; composed of hydrogen, oxygen and nitrogen; and the time is not so far distant, we may hope, when the problem will, in all its forms, be resolved; that is, when we shall be able, an organic body being given, and its composition being known, to reproduce it, either by imitating

the synthetical processes, yet unknown, by which *Nature* produces it; or by the employment of means of which chemistry, at the present day, is possessed: as in the case of urea. So far as regards the alkaloids, we are at present acquainted with a vast number, and, among them, many that are exclusively artificial products.

The modes of formation of compounds of this class, are so well known and varied, that they may easily be produced; and there is no chemist who might not be able to enjoy the satisfaction of obtaining a new alkaloid, as well as an acid, an alcohol, or an ether. Many natural organic alkalies, besides urea, have already been obtained artificially; and it is not the first time that chemists have expressed the opinion, that they will yet be able to prepare directly the alkalies of cinchona and of opium.—Messrs. Dumas, Gerhadt, Kopp, and others, have already expressed this notion.

A new and very important step has been made, towards the solution of this problem, by the remarkable work of M. Wurtz, who has made known to us a large number of artificial alkalies, derived from ammonia, and all of them capable of being expressed by one general formula AzH^3 ($C^m H^{m-b}$) that is to say, by ammonia and carburetted hydrogen.

Each of these alkaloids constitutes, thus, one of the terms of a series, of which carburetted hydrogen, which it embraces, will be the point of departure; or, in other words, the primordial carburetted hydrogen being given, we have, by its combination with one equivalent of ammonia, an alkaloid: as we can obtain from the same radical, an alcohol, an aldehyde, an acid, or an ether, supposing it to combine with various equivalents of water and oxygen.

The principal methods by which we have thus far obtained the alkaloids are the following:

1st. The transformation of certain ammoniacal com-

pounds—thus: Urea is obtained by the simple transformation of the cyanate of ammonia.

Furfurine is obtained from furfuramide.

Amarine is obtained from hydrobenzamide.

Melamine is obtained from sulphocyanuret of potassium.

2d. By the reduction of certain nitrogenized bodies by sulphuretted hydrogen or hydrosulphuret of ammonium.

Aniline is obtained by the reduction of nitrobenzide.

Toluidine is obtained by the reduction of nitrobenzoene.

Cuminine is obtained by the reduction of nitrocumene.

3d. By the distillation of certain organic bodies in connection with potassa. These are

Quinoleine, produced by the action of potassa on quinine, cinchonine, or strychnine.

Aniline, produced by the action of potassa on isatine.

Conicine, produced by the action of potassa on the unknown principle of hemlock.

Nicotine, produced by the action of potassa on nicotianine of tobacco.

Valeramine, or *amyliaque*, produced by the action of potassa on the cyanate of amyline.

4th. The dry distillation of certain products.

The distillation of coal furnishes *aniline*, known by the name of kyanole.

Quinoleine, known by the name of leucol.

Pyrhol, picoline, &c.

5th. Some alkaloids can be obtained by the desulphuration of certain oils, or sulphuretted alkaloids. Thus:

The oil of mustard desulphuretted, furnishes *sinamine* and *sinapoline*.

6th. Finally, we can, by means of natural alkalies, submitted to certain reactions, obtain a vast number of other substances possessing alkaline properties.

Such are, in particular, all the derivatives which we

produce by substitution, or in replacing one or more equivalents of hydrogen in these compounds, by chlorine, bromine, iodine, etc.

For reasons, before announced, the Society of Pharmacy, of Paris, offer a reward of 4000 francs to the chemist who will discover the means of preparing artificially the sulphate of quinine; that is: without employing in the preparation, either cinchona or any other organic matter contained in quinine already formed.

In case this problem is not resolved, the reward will be bestowed on the author of the best work making known to us a new organic product, natural or artificial, having medicinal properties equal to those of quinine, and which can be placed commercially in competition with it.

The treatise must be addressed to "Le secrétaire général," of the Society, before the first of January, 1851.

Those who wish to reserve their processes, in order to preserve their ownership, should place apart, and under a sealed envelope, the descriptions they do not wish made public. On their demand, the Society will appoint one of their number to take the sole management of the experiments. He shall perform them in their presence. A process-verbal of the operations should be drawn up, before the Society separates, and will remain under seal in the hands of the secretary general of the society.

The Society will determine on the opinions of their delegate. In all cases, samples of the product must be presented to the Committee, and to the Society, to be, if it is deemed necessary, submitted to all the experiments desired.

The quantity of the sample must not be less than 250 grammes.

Hottol, Guibourt, Bouchardat, Gaulteirde, Claubry.—Buignet et Psussy, rapporteurs.

REVIEWS.

ART. V.—*The American Journal of Science and Arts.* By Professor B. SILLIMAN, L. L. D., M. D., &c., &c. Prof. B. SILLIMAM, Jr., A. M., M. D., &c., and JAMES D. DANA, A. M. New Haven, Conn. No. 25, for January, 1850.

More than a generation of men has passed away since the veteran and pioneer of American science whose name still stands on the covers of this Journal, issued its first number.

In that time it has gone uninterruptedly forward to the completion of its first series of fifty volumes in 1845; and the second series has now reached its ninth volume. In 1817, Dr. Archibald Bruce, of New York, issued the first and only volume of the "American Mineralogical Journal," but his premature death arrested the continuation of the work so well begun. With this solitary exception, the "American Journal of Science," was the first Scientific Journal in this country, exclusively devoted to the pure sciences. And it has remained longer under one editor, issued on its original plan, in one series, than any other Journal, scientific or literary, issued in the English language.

It has ever been characterized, from the commencement, by its just, manly, and independent course, attributes which might have been anticipated from the well known urbanity and uprightness of its projector and senior editor.

Prefacing the fiftieth volume of the first series, is a lucid and even eloquent history of the origin and progress of this great American enterprize, which must be read,

by every American, with emotions of just pleasure and admiration.

Our readers will need no apology from us, if we use, in this notice, the facts there given, either in the words of the author, or our own rescript.

It is worthy of remark, that the projector, in the very outset, showed the comprehensiveness and enlargement of his mind, and the just sense he felt of the nature of his task, when he announced, in his first number, the "Plan of the Work." "This Journal" he says, "is intended to embrace the circle of the physical sciences, with their applications to the arts, and to every useful purpose." He thus broadly threw open the door for collaborators in all the numerous departments in the varied fields of physical investigation, and the result has shown the wisdom of his course, for up to the close of the first series, not less than six hundred names were reckoned among the original contributors, who had made this Journal the vehicle of their communications. We are assured, in this preface, that of this large army of scientific men, naturalists, and philosophers, over five hundred were, in 1847, still upon the stage of action, and, indeed, that only some fifty were then certainly reckoned among the dead. "Among them are not a few of the veterans with whom we began our career, and several of these are still active contributors. Shall we then conclude that the peaceful pursuits of knowledge are favorable to long life? This, we think, is, cæteris paribus, certainly true: but in the present instance, another reason can be assigned for our large amount of survivorship. As the Journal has advanced, and death has removed its scientific contributors, younger men, and men still younger, have recruited the ranks, and volunteers have enlisted in numbers constantly increasing, so that the flower of the host are now in the morning and meridian of life.

"We have been constantly advancing, like a traveler

from the equinoctial towards the colder zones—as we have increased our latitude, stars have set and new stars have risen, while a few planetary orbs, visible in every zone, have continued to cheer us on our course.

"The number of articles, almost exclusively original, contained in the Journal, is about 1800, and the index shows how many have been contributed by each individual. * * * * * Of party, either in politics or religion, there is no trace in our work; of personalities there are none, except those that relate to priority of claim, or other rights of individuals. Of these vindications the number is not great, and we could heartily have wished that there had been no occasion for any."

For twenty years, from the inception of this Journal, the editor labored alone, although overtures for editorial coöperation, had been made to him, by gentlemen commanding his confidence and esteem, and who would personally have been very acceptable. It was, however, his opinion that the unity of purpose and action so essential to the success of such a work, were best secured by *individuality*,—but he has made every effort, and not without success, to conciliate the good will and secure the assistance of gentlemen eminent in particular departments of knowledge. In 1838, however, the second of the present editors appeared, for the first time, upon the title page of the July number for that year.

Speaking of this second name, the preface says: "The individual, to whom it belongs, having been, for several years, more or less concerned in the management of the Journal, and from his education, position, pursuits and taste, as well as from affinity, being almost identified with the editor, he seemed quite a natural ally, and his adoption into the editorship was scarcely a violation of individual unity."

The patronage of this Journal, up to the close of the

first series, had never reached one thousand paying subscribers, and has rarely exceeded seven or eight hundred. Since the institution of the second series, and alteration of the times of issue, (now six times yearly, in place of the quarterly mode) it has increased somewhat in its circulation, but we understand that the increased cost of the new issue leaves the pecuniary result scarcely, if at all, better than of old.

It has been far from paying a reasonable editorial compensation; it has often paid nothing, and never did much more than pay its bills.

The large number of engravings, and the extra labor in printers' composition, cause it to be an expensive work, while its patronage is limited. In the first series there are nearly three hundred copperplates, and over ten times that number of wood cuts.

But the increasing love of science in this country, the systematic efforts made for its advancement, and the general prosperity, will not long permit this invaluable Journal to feel itself hampered by the want of means. The first yearnings of a love for science and philosophy should manifest itself by a subscription to Silliman's Journal, and those who have reached the greatest heights of science should feel themselves as much bound to subscribe for the Journal of Science, as to do anything else of a scientific character. There is no one way in which science may be as much promoted as in enlarging the usefulness of Silliman's Journal. To that great object every devotee of science should devote his energies.

We have already referred to two of the names of the editorial corps of the Journal of Science, but we should do great injustice to our feelings of grateful admiration, if we were to omit all reference to the third name—that of James D. Dana. He is, in many respects, the most profound thinker and the most admirable writer we have ever followed in scientific investigations. His inductive

power is so remarkable, that he is almost as bold in his inductions, as Leibnitz was in his speculations. As a geological essayist, we think he has no equal; at any rate, we have seen nothing on geology that is to be compared with the remarkable series of papers he has published in the Journal of Science.

The high character of Mr. Dana pointed him out to the government as the Geologist of the United States Exploring Expedition, and never was any public trust more completely fulfilled. There is not a people in the world, —not even France, with all her scientific glories challenging the admiration of the world—nor England, with all the fullness of her scientific fame—that would not feel proud of the works of Dana, connected with the Exploring Expedition.

The pages of the Journal of Science often feel the impress of Mr. Dana's genius, and of his clear and cogent style. His style, as a writer, is peculiar. Each governing word in his argument, his facts, and his inductions is as clear as crystal.

We urge upon our readers to subscribe for Silliman's Journal. Under the editorial supervision of the elder Silliman, it attained its position as one of the foremost scientific journals of the world, and under the management of its present editorial corps, we think it has no rival anywhere. Practitioners of medicine can do themselves no harm by a diligent study of the sciences elaborated in Silliman's Journal, but, on the contrary, they may greatly enlarge their usefulness in their profession.

T. R. Nelson, bookseller, is the agent for this work in Louisville, but the mail is the best communication for country subscribers, direct from the home office.

ART. VI.—*Braithwaite's Retrospect of Practical Medicine and Surgery.* Part 20th.

The Half-Yearly Abstract of the Medical Sciences: Being a practical and analytical digest of the contents of the principal British and continental medical works, published during the preceding six months.—Edited by W. H. RANKING, M. D., Cantab., &c. Republished by Lindsay & Blakiston.

These periodicals still continue their half-yearly visits to the medical profession, and they are among the most useful of their class. They present a faithful record of the progress of the various departments of practical medicine, and are of great value to the practitioner; and in order that our readers may enjoy some of the advantages connected with these practical details, we shall endeavor to make an abstract of some of the most important points in Braithwaite's Retrospect.

SELECTIONS

FROM

AMERICAN AND FOREIGN JOURNALS.

Typhus Fever.—In cases which last for a lengthened period in which the pulse indicates the want of stimulants, and where delirious restlessness was present, Dr. Jones Lamprey, of Meath county, Ireland, recommends the use of port wine. The antimonial treatment, recommended by Dr. Graves, was found useful in composing the nervous disorder. Dr. Lamprey says: "Where the petechia were of a very dark color, or threatening to run into a putrid condition, I have found the exhibition of yeast, in combination with camphor and nitric ether, of great service in staying the septic process, besides acting as a powerful stimulant. I cannot speak too highly of the stimulating and antiseptic properties of this mixture. I have seen it remove the dark, livid hue of the skin in this form of fever in a few hours. The following is the formula I have used:—

"℞. Yeast, ℥x., Camphor, ℥ss., nitric ether, ℥iv. Mix. An ounce to be taken every hour, or every second or third hour."

[A good deal of experience in the use of this remedy, in the last fifteen years, enables us to speak highly of its merits.—*Ed. W. J. M. & S.*]

Treatment of the Diarrhea and Dysentery of Fever.—Dr. Hudson speaks highly of turpentine, in doses of six

or eight minims, given in emulsion, in the treatment of this affection. He furnishes corroborative testimony of its value.

Employment of Manganese in Anemic and other affections. By M. Hannon.—Manganese and iron are almost constantly found united in the same minerals, and can be separated with difficulty. Again, iron is not always efficacious in chlorosis, and fails in curing anemia arising from cancers, from tubercles, from prolonged and abundant suppuration, &c. In these cases, it cannot be the iron that is deficient in the blood, but some other ingredient; and it is probable that iron is united to manganese in the blood; and that cases of anemia, unsuccessfully treated by iron, might be cured by manganese. M. Hannon first tried the effects of this agent on himself. He took at first a grain of the carbonate of manganese daily, increasing the dose to four grains by the end of the first week, and to eight grains by the end of the second. At the end of a fortnight, he experienced symptoms of a plethora; the appetite increased, the pulse became stronger, and the color of the interior of the eyelids was heightened. He then administered manganese to some anemic patients; some of them experienced nausea for two or three days, after which the medicine was tolerated. In a short time, its beneficial effects became manifest in the increase of color, in the fuller and more frequent pulse, in the energetic movements and general improvement of the functions.

The presence of manganese in the blood was discovered by M. Millon, who presented a memoir on the subject to the Academie des Sciences of Paris. His observations have been confirmed by M. Hannon.

[Several illustrative cases are given. The first mentioned is one of extreme chlorosis, in which the patient was sent into country air, and took iron for some time, without benefit. We are told that]

The patient was then directed to take one of the following pills daily before breakfast, and another before dinner: Extract of cinchona, carbonate of manganese, of each a drachm. Mix and divide into four grain pills. Af-

ter she had used these pills for a fortnight, the cheeks and conjunctiva regained their color, and the swelling of the feet disappeared. The following pills were then ordered. Sulphate of manganese, carbonate of soda, of each a drachm; fresh charcoal, honey, of each a sufficient quantity to make a mass, to be divided into four-grain pills. A fortnight after the employment of this medicine, the bellows-sound had disappeared; the pulsations of the heart were strong and loud; and an energetic impulse was felt on applying the hand. There was no syncope; and the appetite had returned. The dose of the pills was increased; and a month after, menstruation occurred, and the patient became plump, and able to bear much exertion. She digested and slept well—in a word, was cured.

[Another case is that of a young lady affected with phthisis:]

Iron, with opium was prescribed; but it increased the cough, and brought on obstinate constipation. Syrup of the phosphate of manganese was then given, with cod-liver oil; the latter being added rather to prevent the contact of air with the manganese, than from any expectation of its producing good effects. The constipation ceased; and the cough became more bearable, and ceased in a fortnight. The patient then began to recover embonpoint. A month after the knuckles assumed a very remarkable brick-red color, which has continued up to the present time—a period of nearly a year and a half.—This patient took three gros (216 grains) of phosphete of manganese, in doses of three grains daily.

Madame R. was affected with cancer of the uterus.—She complained of remitted pain in the hypogastric region, and suffered much while at stool. In the evening, she was troubled with severe lancinating pains, which often continued through the night. She was excessively weak, and of a yellow hue. She was troubled with palpitation, and a bruit was heard in the carotid. The feet frequently swelled. Syrup of the iodide of manganese was given, with syrup of horseradish, for several months. The pains did not leave her, but the anemic appearance completely disappeared. To calm the pains, opium, with extract of hemlock, was prescribed; and the patient became apparently cured.

Mademoiselle M., aged 14, of a scrofulous constitution, had glandular enlargements in the neck, ulceration of the transparent cornea of the left eye, and caries of the first phalangeal bone of the index finger of the right hand. Being the daughter of a peasant, she had lived exclusively on vegetable food; but was ordered to take meat, and to drink beer. Syrup of the iodide of manganese was given in doses of a spoonful two or three times a day. Under the influence of this, and her improved diet, she became less lean; soon after, the cornea regained its transparency, having been washed with a lotion containing gr. ss. of nitrate of silver to an ounce of distilled water. The suppuration of the carious bone ceased, and the finger was cured.

M. G. B., aged 38, had been treated with mercury for some years for constitutional syphilis. The bones were sound; the skin was affected with all kinds of eruptions; the tongue had long been the seat of an obstinate tumor; and there were syphilitic opthalmia and iritis. Fumigation and iodide of potassium were persevered in for several months, but without effect. Iodide of manganese was then given, with syrup of sarsaparilla; and in a month the patient was completely healed. He was directed to continue the use of the manganese; and, as he has not since applied for relief, it is probable that he has had no relapse.

These cases have been selected from a number of similar ones, and show the efficacy of the new remedy proposed. Manganese has in all cases produced a more rapid effect than iron in cases of simple anemia. In the forms of anemia cited, all the cases had resisted iron, and all yielded to manganese. The other cases are respectively of phthisis, cancer, scrofula, and syphilis;—all inducing almost irremediable cachexia, and all rapidly alleviated by manganese. The effects of the manganese, as observed in one case, (phthisis) are remarkable. Iron seldom produces a similar result; if it improves the state of the blood, it increases the cough; so much so, that many practitioners abstain from its use in phthisical cases. In all the scrofulous cases the iodide of manganese, by its salutary and rapid influence, was proved superior to the iodide of potassium. The persistence of the cures obtained by manganese, in comparison with those produced

by iron, is very remarkable; no cases of relapse have been observed by M. Hannon. The quantity required to be taken, in order to produce the desired result, is far from being so great as that of iron.—*London Journal of Medicine, Sep.* 1849, *p.* 871.

Treatment of Nevus by a Solution of Iodine. By Dr. J. O. Bulteel, Plymouth.

[Dr. Bulteel has used with the most satisfactory result a solution of iodine ℈j. in sp. vin. rect. ℥ss. He says:]

The preparation was applied freely once every day, not exciting the slightest constitutional derangement, and the disease every two or three days scaling itself, if I may use the expression, and thus disappearing *gradatim* till nothing more could be seen but two little spots of the size of a pin's head. The application at once arrests the growth of the nevus, and nothing but a regular daily application is needed for its final removal.—*Med. Gazette, Aug.* 24, 1849, *p.* 319.

On the Extraction of Foreign Bodies from the Esophagus. By Professor Dieffenbach.—Foreign bodies observe in their transit certain *stations* at which they halt; thus, in the pharynx behind the thyroid and crycoid cartilages, in the beginning of the gullet, or at its lower end, close to the diaphragm or cardia. They seldom stop at the middle of the gullet. If very large, they may cause suffocation—thus a large piece of meat, a hard boiled egg, a pear, a chestnut, have each proved fatal. Guattani witnessed the most frightful death ensue from a chestnut; the part of the gullet at which it stuck was gangrenous. Spiritus saw the same result follow the swallowing of a five franc piece, which perforated the gullet above the cardiac orifice. Needles, inadvertently swallowed, pierce sometimes the gullet or stomach, advance by the aid of suppuration or otherwise towards the surface, and either escape spontaneously or through incision. Lyson observed a case where three needles that went in at the mouth

came out at the shoulder; I have known one issue at the arm.

The procedure must be modified according to the nature of the substance. None but a bungler would attempt to disgorge a piece of meat sticking at the cardiac opening, or urge on a fragment of glass from the gullet into the stomach. External pressure will suffice for potatoes or plums when stuck in the throat.

For the withdrawal of needles, fish bones, and the like, there is no better implement than a large goose or swan quill feather, with the barbed portion ruffled and imbued with oil. The patient sits with his head leaning upon the breast of an assistant, while the surgeon lowers the tongue, then introduces the feather, with its concave side downwards into the throat, turns it rapidly round, and draws it out. The popular practice of swallowing a crust of bread is sometimes availing, but may also increase the peril when arrested above the bone. A sudden slap on the back is by no means a bad plan when the substance is large and obtuse. It is preferable to that of setting the patient on his head, as was done in the instance of Mr. Brunel to promote the expulsion of the half-sovereign piece.

The principal instruments employed for the present purpose are of the description of forceps. Dupuytren advises, as a preliminary step, the introduction of a gum elastic tube, surmounted with a silver ball, in order to ascertain the position of the foreign body. This, however, is superfluous, and will tend, moreover, to augment irritation. Cooper recommends the forceps of Weiss. The so-called leaden hammer of earlier writers consisted of a lead ball attached to a string, which was let down the throat and pulled up again.

Mesnier's lead hammer was of an olive shape: Petit's was equipped with a wire instead of a string. Petit used besides a metal noose fastened to a whalebone stem; Fabricus Hildanus a many-holed silver tube provided below with a sponge. The double ring of Graefe attached to the end of a rod of whalebone with a steel spring, is very convenient for taking pieces of money out of the throat. The customary instrument, termed repoussoir, or probang, namely, a bit of sponge, as big as a walnut, stuck to the end of a whalebone, is generally useful, ei-

ther for entangling fish bones and the like, or propeling large round substances. My own procedure is as follows: if the body be small and sharp, I employ the oil feather above described. An oiled wax taper, passed down to the cardiac orifice, has proved serviceable; for, as soon as withdrawn, the body has been rejected. If the body be large, as a portion of flesh meat adherent to a frrgment of bone, I use a lithotrite with an imperforate scoop, and rather straight. The instrument is introduced with the blades closed, until it arrives at its destination, when these are to be separated sufficieutly to grasp the substance, and after a few gentle turns, withdrawn.

When there is impending suffocation from the presence of the very large bodies impacted in the throat, Habicot enjoins tracheotomy before resorting to opening the esophagus, I have never been compelled to this extreme measure. The most difficult thing to deal with are sets of false teeth when swallowed. I once relieved an old lady in this predicament by means of my fingers. On several occasions I have removed, with curved polypus forceps from three to four teeth attached to a gold plate, and which got accidentally all into the throat; once, by the aid of an emetic, as a last resort, a set of four teeth very deeply located.

In all these operations, the patient is to be in a sitting posture; the head properly supported; the mouth rinsed with tepid water; tepid water, mixed with white of egg, taken as a drink, and the instrument smeared with white of egg rather than with oil.—*Med. Times, July* 28, 1849, *p.* 78.

On Treatment of Fissures of the Anus. By W. J. Anderson, Esq., London.

[The ordinary mode of treating this disease is by section of the sphincter ani. Mr. Anderson recommends this operation to be performed in a manner different from that which is usually adopted. He says:]

The operation adopted by this great surgeon, (Boyer,) and which is now generally performed, consisted in introducing the finger into the rectum, and upon it a probe-pointed bistoury, with which he cut through, "at a sin-

gle stroke, the intestinal membrane, the sphincter, cellular tissue, and tegument;" thus producing a good-sized open wound. Now every surgeon must be aware that it is perfectly possible for this to be followed by a considerable amount of inflammation, and that if suppuration does occur in the loose cellular tissue around the rectum, it is an exceedingly awkward affair. This danger may be almost entirely avoided, and the operation much modified by the following plan, which I learned from the late Professor Blandin. The instrument employed for this operation consists of a sharp-pointed straight blade, with a flat sliding guard upon one side of it. This guard is rounded at the extremity, oval externally, and flat upon the surface lying on the blade.

It is compressed against the side of the knife by means of a spring, and retained in its position by a slightly projecting pin, sliding in a groove upon the blade. The whole or a portion of the guard can be retracted within the handle by a button attached to it for that purpose. The forefinger of the left hand is introduced into the rectum, and a small opening is made at the verge of the anus with the point of the knife. The guard is then protruded beyond the point, and the instrument carefully introduced through the wound into the sub-mucous cellular tissue between the mucous membrane and the sphincter ani. The cutting edge is then turned towards the muscle, the guard retracted, and the muscle cut through as the blade is withdrawn. If any doubt remains as to whether the muscle is completely divided or not, the instrument, guarded as before, may be re-introduced and a second cut made in a smaller manner exactly upon the first. But if Boyer could cut through all the tissues, in his operation, at one stroke, surely we may do it also, especially when we have not the intestinal membrane and tegument to deal with. The small external wound should then be closed, and the bowels kept in a lax state by means of the confection of senna, given in sufficient quantities to render the motions moist; but purging should be carefully avoided. It may be as well to apply some unctuous substance locally, to prevent any irritation from the feculent matter.

We have here, at any rate, an operation far less repulsive and formidable to the feelings of the patient, and

certainly, in a practical point of view, attended with much less risk. The relief is as instantaneous as in the other operation; but no large open wound is left in the intestine; defectation can, therefore, be performed without the same amount of irritation; and the cure is materially expedited, inasmuch as the parts are not kept in a state of disunion longer than is necessary for its complêtion. Of course the same preliminary treatment, with regard to unloading the bowels, is necessary in this as in the other operation; and those excellent remarks by Sir Benjamin Brodie, concerning the impropriety of cutting directly forwards in the female, or directly backwards in either sex, are equally applicable to both methods of operating.

Lancet, Sept. 15, 1849, *p.* 291.

Salivation Treated by Nitrate of Silver. — y —— Kirby, Esq.—In a late number of the Medical Press, M. Bouchacourt is reported to have used successfully a solution of nitrate of silver in a case of profuse salivation, in which various gargles and sinapisms, &c., have been employed without benefit. I have had much experience of this remedy, having used it for many years in cases of sudden and inordinate salivation. It rapidly arrests stomatitis and the attendant profuse discharge, provided it be applied of proper strength and with sufficient frequency. Of course the teeth become deeply discolored, but these stains being removable by means which shall be noticed, temporary disfigurement is not to be urged as an objection to a free and general employment of so controlling a remedy.

A Case Selected as an Example.—Mr. G., under treatment for bronchitis, with engorgement of the liver and heart, was unexpectedly seized with violent salivation and distracting pain of his gums, which were unusually swollen. I ordered the following solution:

℞. Nitratis argenti drachmam. Aque distillate unciam. Sol.

This solution was freely applied three or four times daily, with a hair pencil, by my friend Mr. Collins. The heat and smarting which ensued upon each application

quickly subsided, and was followed by a period of much ease. In three days the patient's mouth was well.

Until now he had no idea of the condition of his teeth, of whose shape and color he was always rather vain. His annoyance and dissatisfaction at the "ruinous" change of these adornments was displayed in terms of no equivocal import; his chagrin, however, was soon allayed as he saw them brighten under the use of a solution of hydriodate of potash, in the proportion of two drams to an ounce of distilled water; which solution was frequently applied by a brush. He now left for the country, and continued this treatment. When I saw him on his next return to town, his teeth had nearly resumed their former attractive lustre; I say nearly, for although darkness had wholly disappeared, yet a slightly yellowish tinge was perhaps observable.

Mr. Collins, who has been engaged in some experiments as to the means by which stains from the nitrate of silver may be most effectually removed, has favored me with the following report: "I applied a solution of nitrate of silver, in the proportion of a drachm to an ounce of distilled water, to two extracted teeth for some days, until a deep blackness was produced. I treated one by a solution of the cyanide of potash, in the proportion of one part of the salt to two of distilled water; the other I treated by a solution of hydriodate of potash, in the proportion of four grains to ten minims of distilled water; and the hyposulphite of potash in the proportion of one part of the salt to two of distilled water. The latter plan succeeded very well, but the former produced a much better effect, more thoroughly removing all traces of discoloration, after being patiently and carefully applied by means of a soft brush.—*Dublin Med. Press, August* 1, 1849, *p.* 70.

[Mr. Collins, in another number of the Dublin Medical Press gives the following further information on the subject:]

If a solution of cyanide of potassium be added to a solution of nitrate of silver, a whitish precipitate of cyanide of silver immediately occurs. This precipitate is perfectly soluble in an excess of the cyanide of potassium, forming a colorless solution. Black stains produced by nitrate of silver on the skin, nails, teeth, and on linen, &c.,

brushed over with a solution of the cyanide of potassium (eight or ten grains of the salt to ℥j of distilled water) are similarly acted on. They will disappear after one or two applications if at all superficial; if even deeply seated in the textures they may require several. The cyanide of potassium is a cheap salt, and may be had at the Apothecaries' Hall, or from any respectable druggist. The solution should be made fresh, as it is liable to spontaneous decomposition.—*Dublin Medical Press, August* 8, 1849, *p.* 83.

On the Treatment of External Hemorrhoids by Potassa Fusa. By Dr. F. C. Jones, Surgeon to the South London Dispensary.

[Dr. Jones states that within twelve months he has treated between sixty and seventy cases of external piles with undeviating success by the means which he here describes. He says:]

Observing that in all cases of spontaneous cure of external hemorrhoids, they primarily slough, I was led to think that if nature obliterates the vessels by sloughing it is feasible that artificial means might induce the same remedial action.

In turning over in my mind the action of various remedies likely to produce this condition, it struck me forcibly that potassa fusa was precisely the agent required. I forthwith determined to apply it to the first case that came under my care, and the results were, that upon the first application the patient complained of a burning sensation which passed off in the course of half an hour; at the end of four days the parts were consideraly diminished in size, and by brushing a piece of lint quickly over the part I removed the superficial slough, and again applied the potassa fusa; the same treatment was followed at the interval of four days, at the end of which time they had entirely disappeared, leaving only a slight sore, which healed in a week.—*Lancet, Sept.* 8, 1849, *p.* 277.

THE WESTERN JOURNAL.

THIRD SERIES.—VOL. V.—NO. III.

LOUISVILLE, MARCH 1, 1850.

THE LOUISVILLE MEDICAL SCHOOL.

The medical department of Louisville University has just terminated the most successful, useful and brilliant session of its career. We promised great and important results from the changes made last summer and fall in the Faculty, and we believe that all our predictions have been more than fulfilled. In the department of clinical teaching, the success has been all that could have been asked for. This important branch of teaching, which is so shamefully conducted, or neglected, generally, in the West and South, has received vitality at the hands of Professor Bartlett, and we feel fully justified in saying that no medical class ever received a more valuable course of clinical instruction than the recent class in the medical school of Louisville. Professor Bartlett is eminently adapted to the business of clinical teaching; he is thoroughly acquainted with the pathology of disease; he is proficient in all the enlightened methods of investigation known to physicians; he is a master of diagnosis, and possesses remarkable descriptive powers. His manner is more impressive than that of any clinical teacher we have ever known, and dull, indeed must that student be, who can listen to Prof. Bartlett's clinical teaching without profiting largely by it.

The Hospital, under its present arrangement, is admirably fitted for

clinical instruction. The joint committee of the legislature thus speaks of the institution:

"A large number of invalids, male and female, tenanted and occupied the different apartments of the building, and all the offices of "good Samaritanism" seemed to be actively employed by those entrusted with the care and management of the concerns of the hospital.

"Cleanliness and comfort were everywhere visible, and every want of the sick was apparently supplied.

"The rooms of the building are large, comfortable, well lighted, and susceptible of the most excellent ventilation.

"We think too much praise cannot be bestowed upon those whose efforts have so potently contributed to smooth the pillow and soften the bed of the afflicted."

These facts hold out inducements to patients to go into the hospital, and while they are greatly benefitted by the care bestowed upon them, the material for clinical instruction is ample and varied.

Professor Silliman's success has justified the highest anticipations of his warmest admirers. His course of lectures has been received with great favor by the class, and its members are enthusiastic in their expressions of approbation. There is no difference of opinion, among the students, as to the excellence of Professor Silliman's lectures; they all speak in warm terms of the fullness, clearness and impressiveness of his lectures, and of his rare skill as a manipulater and experimenter.

Our friend, Professor Rogers, too, has fully justified the expectations of his friends. Their expectations were very high, but he has fully come up to them. We have never known a young lecturer who seized success with a firmer grasp.

We congratulate the lovers of medical science upon the auspicious circumstances of the Louisville medical school. No institution in the country has stronger claims upon those who wish to obtain a thorough knowledge of medical science in all its departments.

COLLEGES IN THE UNITED STATES.

There are, in the United States, one hundred and twenty colleges, of which eighty-one have been chartered since 1819. Many of them, in fact, have only a nominal existence. The oldest are, Harvard College, in Massachusetts, founded in 1636; William and Mary, in Virginia, in 1692; Yale College, New Haven, Conn., in 1700; Princeton, in New

Jersey, in 1746, and the University of Pennsylvania, in 1755. The several religious persuasions are very variously represented, as respects the numbers of the literary institutions attached to their several interests. Thus, seventy-one, (or considerably more than half,) are representatives of the Presbyterian and Congregational denominations, or are undesignated, and this number embraces by far the largest and most celebrated of American literary institutions—e. g., Yale, Harvard, Princeton, &c. The Baptists, Romanists, and Methodists have each thirteen, and the Episcopalians ten colleges. The literary property of these several institutions, is as various as their other points of comparison. It appears that the aggregate libraries of the American colleges is 751,425 volumes. The several libraries at Harvard contain nearly 85,000 volumes which is the largest collection of books in America. The next largest collection of books is found at Yale, where the number is nearly 50,000. Below these we find Brown University, Bowdoin, and Georgetown, having respectively 27,520, 25,520, and 23,250 volumes each.—Harvard College has 6,203 graduates, of whom 1,628 have been clergymen. Yale has had 5,856 graduates, of whom 1,510 have been clergymen. Princeton has the next largest number of graduates, 3,031, of whom 577 have been clergymen. If the medical graduates of Pennsylvania University are included in her list of names, the aggregate graduated at that institution rises to 5,142, of which, however, 4,952 are medical. It is difficult to form a just estimate of the corps of officers engaged in the several institutions, since in the Roman Catholic colleges (?) the teachers in the primary departments are included, as well as the scolars in the primary departments. Bearing this in mind, we find only five American colleges, in which over twenty instructors are employed, viz: Mt. St. Mary's, Baltimore, (Catholic primary and collegiate) twenty-four teachers. Yale, twenty-one. St. Charles, Louisiana, (Catholic), twenty-one. Harvard, twenty. St. Mary's, twenty.

The colleges are very unequally distributed over the union. The older States, with a dense population, numerous schools, and academies, and minor means of instruction have, as a general rule, fewest colleges; but those they have, are far more numerously attended, and better endowed, than the more frequent but often feeble institutions in the South and West. Thus, Maine has two colleges; New Hampshire, one; Massachusetts, three; Vermont, three; Rhode Island, one; Connecticut, three; New York, eight; New Jersey, three; Pennsylvania, ten; Delaware,

one; Maryland, five; District of Columbia, two; Virginia, ten; North Carolina, t ree; South Carolina, three; Georgia, five; Alabama, four; Mississippi, one; Louisiana, four; Tennessee, eight; Kentucky, eight; Ohio, twelve; Indiana, six; Illinois, four; Missouri, six; Michigan, two; Wisconsin, one.

In all this long list, the only literary institution whose aggregate number of students in the *Academical* department, (not preparatory) exceeds three hundred students, is Yale College, in Connecticut. This institution has 306 students this year, and last year (1848-49) had 385 academical students. Seven other institutions exceed two hundred students, and twenty-nine have between one and two hundred. The annual expense of tuition, at these institutions, ranges from $24 to $75—a very moderate charge, certainly, at the highest, for the time and services of so many competent instructors.

Medical Schools—At the last dates there were thirty-five medical schools in the United States, viz: in Pennsylvania, five; in New York, four; in Maryland, two; in Massachusetts, two; in Vermont, two; in Virginia, two; in Kentucky, two; in Ohio, three; and in Missouri, four. In the other States, only one exists, or none, in each State. The oldest medical school in the United States is the old medical department of the University of Pennsylvania, which was established in 1765. Next, we have the medical school of Harvard College, founded in 1782, and that of Dartmouth, in New Hampshire, established in 1797.

The oldest institution in the West, for medical instruction, is at Lexington, founded in 1818, and having now 1,351 graduates. The numbers of graduates at Pennsylvania University is 4,952; at Jefferson Medical College, 1,598; at Baltimore, 909; at the College of Physicians and Surgeons, New York, 852; at Yale, 850; at Louisville, 688; at the University of New York, 597; New Hampshire, 758; Maine medical school, 596, &c. The institutions having the largest classes at present, are the University of Pennsylvania, 508; Jefferson Medical College, 480; Medical Faculty at the New York University, 421; Louisville, 376; Cleveland, 258; the College of Physicians and Surgeons, New York, 219. The number of Professors in the several schools ranges from three to nine, viz: one has three, (University of Virginia); three have five; thirteen have six; thirteen have seven; three have eight; two have nine, (the St. Louis colleges.)

The growth of the medical department of the Louisville University has been remarkably regular and progressive. We annex the statistics in a tabular form, viz:

Years.	*Students.*	*Graduates.*	*Years.*	*Students.*	*Graduates.*
1837-38	80	24	1844-45	286	71
1838-39	120	27	1845-46	345	73
1839-40	204	38	1846-47	348	75
1840-41	208	48	1847-48	406	94
1841-42	262	53	1848-49	332	81
1842-43	189	37	1849-50	376	
1843-44	242	47			

AMERICAN MEDICAL ASSOCIATION.

Our readers will bear in mind that the American Medical Association is to meet, this year, at Cincinnati, and that the day of meeting is the first Tuesday in May. All the schools and medical societies in the West, it is to be hoped, will appoint delegates, and that there will be a full attendance. The meetings of the Association heretofore, have been full of interest, and there is no reason to doubt that the approaching one will be equally so. The following gentlemen will attend as delegates from the several institutions in this city, to wit: Professors Miller and Gross, from the University of Louisville; B. I. Raphael, M. D., and David W. Yandell, M. D., from the Louisville Marine Hospital; and Theodore S. Bell, M. D., and Robert J. Breckinridge, M. D., from the Louisville Medical Society. It will be seen from the following notice of the Committee of Arrangements, that our brethren in the Queen City are making ample preparations for receiving the Association:

In consequence of the delay, up to the present time, in the distribution of the Transactions of the second meeting of the Association, held at Boston in the month of May, 1849, the *Standing Committee of Arrangements*, appointed at that time, deem it expedient to give public notice, through the medical periodical press, that the next meeting will be held in Cincinnati, on Thursday, the 7th of May, ensuing; and, at the same time, they wish to make known to the physicians, who reside in portions of the United States from which few or no delegates have yet been sent, the terms of membership. This they will do, by copying a part of the second article of the Constitution:

"*The Delegates* shall receive the appointment from permanently organized medical societies, medical colleges, hospitals, lunatic asylums,

and other permanently organized medical institutions of good standing, in the United States. Each delegate shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the association.

"Each local society shall have the privilege of sending to the association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half this number. The faculty of every regularly constituted medical college or chartered school of medicine, shall have the privilege of sending two delegates. The professional staff of every chartered or municipal hospital containing a hundred inmates or more, shall have the privilege of sending two delegates; and every other permanently organized medical institution of good standing, shall have the privilege of sending one delegate.

"*The Members by Invitation* shall consist of practitioners of reputable standing, from sections of the United States not otherwise represented at the meeting. They shall receive their appointment by invitation of the meeting after an introduction from any of the members present, or from any of the absent permanent members. They shall hold their connection with the association until the close of the annual session at which they are received; and shall be entitled to participate in all its affairs, as in the case of delegates.

"*The Permanent Members* shall consist of all those who have served in the capacity of delegates, and such other members as may receive the appointment by unanimous vote.

"Permanent members shall at all times be entitled to attend the meetings, and participate in the affairs of the association, so long as they shall continue to conform to the regulations, but without the right of voting; and when not in attendance, they shall be authorized to grant letters of introduction to reputable practitioners of medicine residing in their vicinity, who may wish to participate in the business of the meetings, as provided for members by invitation."

The committee desire, still farther, to give notice that it is their duty to receive and present the reports of any of the standing committees, whose members cannot attend the meeting; and all communications on scientific subjects, which gentlemen, not members of the Association, may desire to lay before it.

It is, likewise, their duty to examine the credentials of delegates and register their names, which it is desirable should, as far as possible, be done before the meeting of the Association, for which purpose the committee will meet on the preceding day.

In conclusion, the committee indulge the hope, that this first meeting in the interior of the continent, will be well attended by its physicians, and all who cultivate the sciences auxiliary to medicine; that no society, college or hospital will remain unrepresented; and that many distinguished physicians, not appointed as delegates, will attend and become members by a vote of the Association.

DANIEL DRAKE, M. D., Chairman.

D. P. Strader, M. D., Secretary.

Cincinnati, Jan. 31, 1850.

THE CAUSE OF CHOLERA.

All who are attentive observers of "the form and pressure of the times," have been struck with the facility with which the clergy cut the Gordian knots of medical philosophy. When physicians are puzzled, either about the cause or treatment of a disease, the clergy benevolently step in to clear up the mystery. The following statement, made by the London correspondent of the New York Tribune, is no fancy sketch, and it is illustrative of the remarks we have made on the medical tendencies of the clergy. The Tribune says:

"The cause of cholera not having been determined by physical examination, it is attempted to account for it upon spiritual reasons. Rev. Dr. McNeile thinks it is a judgment on England for favoring 'Popery'; Rev. Mr. Toye, of Gateshead, that it is to deter people from marrying deceased wives' sisters; Rev. Mr. Gutch, of Liecester, attributes it to Parliamentary electors voting for Dissenters and Jews, instead of Church of England men; while others attribute it to the omission of 'Dei Gratia,' from the new florin. The new Post Office Sunday arrangement is another assigned cause. An old Jew, being in an out-of-the-way alehouse, treated himself to some ham and eggs; but just as he was about to raise the forbidden morsel to his mouth, a clap of thunder startled him: he dropped his fork, saying 'Mein Gott! all dish fuss, chust becaush old Moshesh is eating a leedle pit of pacon!' We are constantly looking to the stars for the causes of things which lie at our feet. More than one educated man has told me in England that he believed Animal Magnetism to be a Satanic influence. A belief in present witchcraft, as a special compact with the old gentleman who wears the horns and flourishes the tail, was avowed to me by a classical scholar and extensive reader."

TILDEN & CO.'S ALCOHOLIC EXTRACTS.

We have received, from the manufacturers of these extracts, several samples of the medicines, and from the trial we have made of them, we have no hesitation in pronouncing them superior to anything of the kind ever made in this country. Prof. Clark, one of the most reliable of men, in a letter to the editor of the New York Journal of Medicine, speaks in laudatory terms of the manufactory of Tilden & Co., after having visited the establishment. He says:

"I have lately visited the manufactory of these extracts. After inspecting the whole process, and examining a large number of prepara-